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THE GIFT OF  
EDWIN FRANCIS GAY  
LL.D. 1918  
OF CAMBRIDGE

November 1, 1919











# Agriculture Improv'd: OR, THE PRACTICE OF HUSBANDRY DISPLAY'D.

Chiefly shewn by FACTS,  
Perform'd in all Sorts of Land, according to the Old *Plain*,  
and the New *Drill*, Way of FARMING.

In Two VOLUMES: Containing,

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| <p>A Receipt how to improve an Acre of Barley for Six-pence Charge.<br/>How to improve that noble large Fowl the <i>Buffard</i>.<br/>The Nature of Pond-Insects; Also of Serpents; and how to cure their venomous Bites, &amp;c.<br/>How to prevent the Mischiefs done to Farmers by Sparrows.<br/>Of St. <i>Timothy's</i> Grass, (five Feet long) which will mow four Times a Year.<br/>Of NIGHT as well as DAY FISHING.<br/>Tench-Broth, its Restorative Nature; and how to make it.<br/>Mr. <i>Worlidge's</i> Notes on Husbandry commented upon.<br/>Of Improving of Estates, Soils, Bogs, &amp;c.<br/>Of the Management of BEES.<br/>How to prevent Damage done to Peas by Pigeons, &amp;c.<br/>Accounts of several new-invented Engines</p> | <p>and Implements, of great Use in Husbandry.<br/>How Farming may be carried on by the Drill-Plough, without Dung, Manure, or live Cattle.<br/>How to preserve Wheat in Granaries, from Damps, Vermin, &amp;c.<br/>How to defend Crops of Turnep-seed from Field-Fowls.<br/>Of Encouragements from Landlords to promote the Industry of Tenants.<br/>The present State of bad Husbandry in SCOTLAND; with Proposals for remedying it.<br/>The <i>Cheeshire</i> and <i>Lancashire</i> Way of Managing their Wheat and Barley Crops.<br/>Of the bad Consequences of wrong Manuring, wrong Ploughing, &amp;c.<br/>Damage done by greedy Tenants to themselves and Landlords, by Ploughing up the poor Lands of Wolds, Downs, and Commons.</p> |
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With many other Curious and Serviceable Matters,  
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V O L. I.

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By WILLIAM ELLIS, a Farmer, of *Little Gaddesden*, near *Hemsted*,  
in *Hertfordshire*, Author of the MODERN HUSBANDMAN.

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L O N D O N:  
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# AGRICULTURE Improved.

*For the Month of May.*

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**I** SHALL begin this Treatise with reciting Mr. Worlidge's *Notes on the Month of May*, who was certainly a most ingenious, learned Gentleman, which enabled him to touch on many Branches of Husbandry; but, for want of being acquainted with the practical Part, was forced to write very, very little on them: And therefore I shall here attempt some of their several Explanations, according to the present Practice of Husbandry.—See his Book, intituled, *A Complete Body of Husbandry and Gardening: Or, The Gentleman's Companion in the Business and Pleasures of a Country Life. Printed in the Year 1716. Price Six Shillings.*

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## CHAP. I.

**M**R. Worlidge's *Husbandry-notes on the Month of May*.—This Month ushers in the most welcome Season of the Year, Now gentle Zephyrus fans the sweet Buds; and the celestial Drops water fair *Flora's* Garden.—The Countryman's Heart is revived (if this Month  
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prove seasonable) with the Hopes of an happy Autumn; if it prove cold, it is an Omen of Good for Health, and promises fair for a full Barn: The Pleasure of Angling is now in its Splendor, especially for Trout and Salmon.—

Now wean those Lambs you intend to have the Milk of their Ewes; forbear cutting or cropping Trees you intend shall thrive, till *October*; kill Ivy.

If your corn be too rank, you may now mow it, or feed Sheep with it, before it be too forward; weed Corn, in some Places Barley may be sown in this Month.

Now sow Buck-wheat, or Branck; sow Latter-pease: Also Hemp and Flax may yet be sown.

Weed Quicksets; drain Fens and wet Grounds; trifallow your Land; carry ont Soil and Compost; gather Stones from the Fallows; turn out the Calves to Grass; overcharge not your Pastures, lest the Summer prove dry; get home your Fuel; begin to burn-beat your Land; stub or root out Goss, Furze, Broom, or Fern; and grub up such Coppices, or other shrubby woody Places, you intend should not grow again.

Sell off your Winter Cattle.

About the End of this Month mow Clover-grass, St. Foin, and other *French* grasses. Now leave off watering your Meadows, lest you gravel or rot your Grass.

Look now after your Sheep, if this Month prove rainy, lest the Rot surprize them.

Plant all Sorts of Winter Greens.

Sow the more tender Garden-seeds; as sweet Marjoram, Bawm, Thyme, and hot aromatic Herbs and Plants; set Sage and Rosemary.

Cover no longer your Cucumbers, Melons, &c. excepting with Glasses; sow Purslain, Lettuce, &c.

About

About the End of this Month take up such Tulips which are dried in the Stalk.

Bind Hops to their Poles, and make up the Hills after Rain.

Watch the Bees now ready to swarm.

## C H A P. II.

**H**OW necessary it is for Farmers to observe Plowing, Sowing, Feeding, Mowing, Reaping, and performing a thousand other Things in the Art of Husbandry in due time. — Experience has often proved how important it is for Farmers to observe Plowing, Sowing, Feeding of Cattle, Mowing, Reaping, and doing a thousand other Things in the Art of Husbandry at a right time; by the fatal Effects that have ensued the Neglect thereof. For there is certainly a critical Time for most Things; and more particularly for performing those Actions that depend on the various Seasons of the Year, of which the Countryman is, more than any other, concerned in the due Observation. Time, says one, is a thing so precious, and Occasion so precipitous; and, where many Things are to be done, Time let-pass prevents the Success of our Endeavours, and then Loss and Confusion succeeds; hence we say, the bad Husbandman has but one Chance in seven Years to get full Crops (according to the general Notion of the Country): And then he chiefly enjoys them by the mere Affluence of the Weather; that is, when a mild Winter, and a hot Summer, are attended with frequent Showers of Rain; for such Seasons commonly cause the industrious Farmers Crops to grow too rank, and consequently spoil; when the poor Land of a

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negligent Farmer produces Crops in a just Growth, to his greater Profit. And Mr. *Warlidge* well observes, that it is a very great Neglect in Agriculture, to be too late : It brings a considerable Damage ; like a backward Year, that produces a bad Crop, so doth a backward Husbandman meet with small Gains. You very rarely find a thriving Husbandman behind with his Affairs, or a declining Husbandman so forward as his Neighbour. In *Hertfordshire* we call the latter Sort *Afternoon Farmers* : It is the early Bird that catcheth the Worm ; accordingly a diligent Farmer thinks an Hour's Time in a Morning, for doing of Business, is worth two in an Afternoon ; and therefore in this Month, and throughout all the Summer, he, by ringing a Bell or Call, alarms his Plowman, and the Plowman his Horsekeeper, who lies with him, and makes him turn out of Bed every Morning at Four of the Clock, to bait his Plow-horses, for two Hours. At Five the Plowman rises, to help harness the Horses ; and then while they are feeding, both go to Breakfast ; and at the same Hour of Five the Master is up, to see these and other things performed in due Order, and his Team set out to plow at Six a Clock ; for, according to the common and true Saying, *The Eye of the Master makes the Horse fat* : And observe, that they continue Eight Hours Work in the Field, before they shut out ; so that it is about Two a Clock, before they return to the Stable ; when (as I have often known it done) a slothful Farmer suffers his Team to set out of his Yard by Seven a Clock, and out of the Field by One ; which occasions him to do that Work in Six Days, which he might conveniently do in Five. Hence it is, that a backward Farmer loseth fine Sowing-days, and thereby, perhaps, a right Season for all that Year, to his great Prejudice ;

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or, by his Neglect, his Hay or Corn is out in the Field, when it should have been in the Barn, and thus becomes spoiled by Rain. It was the Advice of a Friend, to one that took a Farm, where others had broke before, That he rose, at Five a Clock every Summer Morning, to water a particular Tree, and then he would engage he would not break. The Meaning of which is, That, if he was out in his Fields by that time, he would discover and prevent those who used to turn their Cattle into the same Ground, while the former sluggish Tenants were asleep, and eat up their Grass and Corn. I knew an old Knave practise this Sort of Rapine many Years, and in several Farms that he lived in, by being up earlier and later than his Neighbours; which gave him an Opportunity to make a small Gap in a Hedge, or, by lifting a Gate off its Hinges, tho' locked, make a Way for his Sheep or Horses to get their Belly full at his Brother-farmer's Cost; and if they happened to be taken in the Trespass, as he was then out of Sight, he would plead accidental Damage. But if this Excuse did not avail, and Pounding succeeded, his next Study was, how to retrieve this Loss, which he generally did in the following Manner; *viz.* When he thought others were safe in their Beds, he would go and open a Place for inviting his Neighbour's Cattle into his Ground, and then likewise pound them; a Skit that seldom failed of reimbursing him of what he was out of Pocket this way; and it was for this sharp Sort of Proceeding that he was called *Cut*, to his dying Day. Others there are, who keep a Horse or Horses for Higglings, or for carrying of Timber, or keep Asses or Mules for carrying earthen or other Ware about the Country; some of these are the Farmers great Enemy, but most of all to the slothful Sort, because these Night-  
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Encroachers wait a late Hour for turning their Beasts into a Field to fill their Bellies, with a Bag at their Tail to catch their Dung, and prevent Suspicion; for they little fear Surprise, as trusting to their vigilant Watching to take them out before the Farmer or his Men are up. But there is rather a worse Mistake to come yet, and that is, by a lazy or ignorant Farmer's wrong timing the Sowing of his Seed, as it often happens; for if, as I have remarked in my former Works, a Farmer was to sow an Horn Grey-pea so late as in *April*, or a Blue-pea in *January*, both Crops would be consequently lost. Or if a Red Lammas-wheat was to be sown in *February*, or if Barley-seed was sown then in a wet Soil, it might be expected they would share the same Fate; and the same in an Hundred other Instances, which I think I could name: However, what Mr. *Worlidge* observes is very just, when he says, "As for the Times and Seasons of the Year, from the Beginning to the End thereof, every Day something is to be done by the Husbandman, as was said of a Gardener, That his Work is never at an End, it begins with the Year, and continues to the next; yet it is not every Year alike, neither is every Place alike; some Years, or, at least, some Seasons of the Year, prove more forward by Two or Three Weeks, or more, at one time than at another; Also the Situation of Places, either better defended from, or more obvious to the Intemperature of the Air, begets some Alterations." In these, and such-like Cases, the subsequent Rules of my several Monthly Supplements are to be seasonably applied by the judicious Husbandman, according as the Season happens to be earlier or later, or the Nature of the Soil, and its Situation require; and which, as they are written for the Practice of *Britain*,

*tain*, are very different from many of those Rules laid down by antient foreign Authors, who wrote their Books in *Italy*, *France*, and other hotter Countries, where their Degrees of Heat, and earlier Seasons, very much vary from those of ours; and therefore a Grain, a Grass-seed, or a Tree, &c. proper to the Climate, Season of the Year, and Soil, should be with nice Judgment sown and planted: For if, no farther off than in some Parts of *Darby*, *Stafford*, *Shropshire*, and other Northern Counties, they are obliged to sow Oats for Bread, because the Poorness of the Ground, and the Severity of their cold Seasons, will not suffer Wheat to prosper; or, if they do sow Wheat, or Barley, or Peas, &c. the first must be sown very early, and the latter later than is observed to be done in the more southern Parts of *England*: How should one Rule of Time, &c. serve for both Countries, without leading the Farmers of one or both of them into Mistakes? On the Grass Baulks of some of my plowed inclos'd Fields, I have some Standard *French*, and other excellent forward Pear-trees growing, that, in some kind Seasons, with a little Assistance at their Roots, bear pretty well; when, if such were planted in some Parts of the North, it would discover a great Imprudence in their Owner, because, their tender Natures not being capable of resisting the Violence of their late cold Weather, it would render their expensive Attempts fruitless. Wherefore, when Gentlemen send to me for different Sorts of Corn, Grass-seeds, Fruit-trees, &c. I endeavour to know the Nature of their Soils, and their Situations; and accordingly give them the best Account I can, when, where, and how, to sow these Seeds, and plant the Trees that are proper, and apply a Dressing to them, as is most agreeable to the Place for forcing on a full Growth  
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of their several Species with the greatest Expedition and Profit.

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### C H A P. III.

**I**F the Month of *May* prove seasonable, it revives the Countryman's Heart with the Hopes of an happy Autumn, and a full Barn.—As this Remark affords my Pen a very extensive Opportunity to make Observations on several Field Vegetables that are to be received into Barns; I shall first begin with that of *Wheat*.

*Of Wheat, and its Incidents, in the Month of May* —These *Items* of Mr. *Worlidge* are certainly true, though mere and trifling, because they are without useful Explanations; and therefore I am induced to enlarge on their Particulars, that they may become serviceable to my Readers. Hence, then, I am to observe, that the Month of *May* may be said to be seasonable, and revive the Farmer's Heart, when he sees it attended with dry Weather; for then his Corn, his Grass, and his Trees, are forced on in a regular fertile Growth, which gives the *Wheat* an Opportunity to begin opening its Sheath or Huse, and let out the green Ear of the more forward and largest Stalks; for we say, *May never goes out without a Wheat-ear*; and then, if the former Months have been as propitious as a dry *May* is, there will appear a most encouraging Sight, to see whole Fields of this King of Grain shew their innumerable long Heads, in their green Livery, full of plump, milky Kernels, as a Presage of great Crops at Harvest; for, by means of favourable Seasons before, and now, those prejudicial Extremes are very much avoided, which sometimes damage  
Wheat

Wheat in its tender infant Growth ; but when inclement Seasons have happened before, and a wet cold *May* follows ; or if former Months have been kind, and only *May* falls under this Extreme of Weather ; Wheat, that should now appear with a very deep, green Colour, and broad Blades, will shew itself reddish at their Ends, or yellowish and sickly ; and the more, if Inundations of Waters cover Valley and other low Grounds, when but a Yard or two's Breadth is to be seen on each Side of a Ridge-land free of Water, then it is, that the Vale is in Danger of being fed by the Hill, according to the old proverbial Observation :

*When the Sand doth feed the Clay,  
England Woe and Wail-a-day !  
But when the Clay doth feed the Sand,  
Then it is well with England.*

For *A May Flood never did England Good.* Hence the old Observation had its Rise.—

*A cold May, and a windy,  
Makes a full Barn, and a findy ;*

Because a cold and dry *May* prevents the luxuriant Progress of Weeds, by checking them, and giving the Wheat an Opportunity to maintain itself in such a moderate Growth, as to keep the Weed under, and yet not run into that Rankness of Stalk which sometimes occasions the Loss of the greatest Part of the Crop. This Consideration leads me to take notice more particularly of the two Extremes of Weather that have affected Wheat in *May*. If a hot, dripping Time attends this Month, it is very likely to force the green Wheat to run so fast into high, heavy Stalks and Ears, as to cause them to bend under their great Weight,

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## 10 AGRICULTURE Improved.

as being loaded with Sap, and the Water of Rains, while they are in their tender green Age, and weak Condition; then, if the Wheat continues couching and falling down, it is in great Danger of producing poor thin Kernels, and consequently a half or quarter Crop at Harvest; because, by such Bent or Fall of its Stalks, the Sap is checked in its Ascent, and cannot feed the Ear in due Time, nor with that Plenty of it, as is necessary to fill and enlarge the Kernels to their desired Bigness. This Evil is likewise sometimes increased by the Fall of Honey-dews, which, by this couching Posture of the Wheat, have the greater Opportunity to fall, and make a Lodgment on its Stalks, that they spot and blacken with their burning Quality, and which tend to ripen the Straw too soon, hinder such Nourishment being conveyed to the Corns, as would otherwise feed them in great Perfection; and thus these Dews prove another great Impediment to lessen the Farmers Crops of Wheat.

On the contrary, if it happens to be a very cold wet *May*, as sometimes it is, to that Degree, that a Blackbird has been killed on its Nest, and the Cow made to quake by its extreme Sharpness, then the Roots of this Pay-rent Grain will be probably chilled, and many of them killed; and then it is, that the Farmer's Arch-enemy, the Weed, soon triumphs, by getting full Room to enlarge its Roots, spread its Branches, grow into high Heads, and carrying its Dominion over the Wheat, to the Destruction of great Part of the Crop; which before, by kinder Seasons, remained Master of the Field, and subdued the Weed. This is the main Month of all the Year for discovering Plenty or Scarcity of Wheat, Barley, and other Grains and Vegetables; for, as their Condition is in this Month, an Estimate, in a great Degree, may be made of their good or bad Success, ac-

cording to the Nature of the Weather that attends their Growth, as I have before observed : Which Case so governs the Conduct of many who are concerned in the Trade and Use of them, that they forbear furnishing themselves with great Quantities of Wheat, Barley, and other Grain and Fruits, &c. till they see *May* past, for being the more able to form a Judgment with the better Assurance of the Produce the present Year is like to be attended with.

*How a considerable Number of Soldiers improved a Wheat-crop.*—It was in the Spring 1742-3. when a considerable Number of Foot-soldiers marched from the North to the South Part of *England*; and, as it happened, two Companies of them came into one and the same Town in *Hertsfordshire*, to be quartered, instead of one Company, because one mistook their Way to another Town which was ordered them by their Route : And, being here, the Landlord of the biggest Inn, who rented some Fields behind his House, that were a chalky Soil, desired their chief Officer to exercise his Men on one of them, that had Wheat growing in it, and he would treat them all with——. Accordingly the Officer complied with his Request, and exercised the two Companies thereon, that trod down his Wheat to the Purpose ; for, you must know, this chalky Soil is of so loose a Nature, that they seldom could get a tolerable Crop of Wheat off the same ; because, though they sowed the Seed in ever so good a Season, yet the Frosts and *March* Time generally loosened this crumbling short Earth about the Wheat-roots, and dried them so much, as to give the After-rains and Winds Power to beat and lay down the Stalks and Ears of this rich golden Grain, so as to make it a poor silver Crop by reason it had not a Foundation stiff enough to support them in a due Erection. But



by the Soldiers trampling on this Crop during all the Time of their Exercise, they trod the Wheat so close down, and fastened the Earth so firm about its Roots, that the Surface became crufted into a hard Consistence, which exactly answered the Owner's Desire ; for on the third Day of this Month there was a fine Appearance of a promising plentiful Crop at Harvest, and accordingly the Wheat grew up with large Stalks and Ears ; and though this Field lay in a very high Situation, facing the North and East ; yet, by the Soldiers treading, the Roots received such Strength, as enabled them to support the Wheat against all the Violence of Winds and Rains that afterwards happened ; and at last produced a plentiful Crop, that fully answered the Innkeeper's Satisfaction.

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## C H A P. IV.

### *Of French or Buck-wheat.*

*W*HETHER some think sowing French Wheat in the Broad-cast way is better than when it is sown in Drills.

— In my Monthly Book of the Modern Husbandman for *May*, I have written very particularly on this serviceable Grain ; but I have not there made that Distinction I should have done, between sowing this Wheat in the broad Land, and in the Drill-mode, and therefore here I shall endeavour to supply the Deficiency. In all my Travels I never see this *French* Wheat sown any other Way, than in the Broad-cast Fashion ; because they think it so good a Way, that none can exceed it, as being the greatest Weed-killer of all Field Vegetables, by means of its branching, and growing, with its large high Stalks, into very bulky

bulky Crops, and with such Expedition, as gives a Farmer an Opportunity of sowing it in *May*, and yet to mow it, for plowing it in, as a Dressing to nourish a Crop of natural Wheat in *July* : Thus *French* Wheat kills Weeds in the cheapest Manner possible, and yet may be enjoined as an Improver of a poor hungry Soil, or to stand for mowing it as a Crop of Seed. About *Chaffon*, that lies between *Amersham* and *Uxbridge*, they sow much of this Seed on their gravelly Soils, some for plowing it in at Blossoming-time, and others, for the great Quantities of triangular Grain that it produces, which serves their Farmers to fat their Swine, at a very easy Rate, and in a very short time ; for this Grain, if rightly managed, will be greedily eaten by them and Poultry ; and, sooner than most other Corn, will breed Flesh on Horses, Cows, Sheep, and other Beasts. But a certain Farmer in these Parts proceeded in a Way of getting a Crop of *French* Wheat I never heard of before.

*A new Way of sowing French Wheat.*—Near *Rickmansworth* in *Hertfordshire* a Farmer sowed a four-acre gravelly Field with Hog-peas Broad-cast ; and after these were ripe, and got off the Ground, he immediately plowed up the same, and harrowed in Rye for feeding his suckling Ewes in *February*, *March*, and *April*. When the Rye was eaten off, he plowed up the same Ground on the Fourth of *May*, and on the Thirteenth following he plowed the same again all in Broad-lands, and then found the Earth fine enough for his Purpose ; and that was this : He sowed, on each Acre of this inclosed Field, three Pecks of *French* Wheat, and one Pound of Turnep-seed Broad-cast, and harrowed all in together. The Wheat was sown to plow in for a Dressing to the Ground, and so once or twice more afterwards,  
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in order to get it rotted and well mixed with the Land for setting a Crop of natural Wheat on the same. And the Turnep-seed of the *Dutch* early Sort was soon to pull up in *July* for the Farmer's Pot, and to sell in Harvest-time; and as the *French* Wheat was sown in less Quantity than usually is done for an intire Crop, it grew thin, and gave a Man the more Room to pull up the Turneps; and though he was obliged to tread down some Part of the Wheat, yet, as it was to be plowed in, the Damage was of the less Consequence. After the Turneps were got off, and the *French* Wheat plowed in, and the same Ground plowed till it was got into a fine Tilth, the Farmer sowed it with natural Wheat in *October* following; and in *May* 1742. the Wheat made so fine an Appearance as promised fair for a full Crop at Harvest.

*How French Wheat may be improved by the Drill Husbandry.*—I am here about to undertake what was never written of before in respect to the sowing of *French* Wheat in Drills. Yet I am sure it may be done three several Ways: If a Person would have an intire Crop of this Wheat grow in the Drill-mode, he may sow the Seed out of the Hopper of the Drill-plough, in Drills at Twelve Inches asunder; but then the Land ought to be first prepared by several Plowings, till it is in a fine Tilth, and at last laid in one intire broad Land; that is, it is to be so plowed, that there be no Water-furrows throughout the Field; if there is, the Drill-plough cannot rightly perform its Work; but when the Ground is got thus into Order, then the *French* Wheat may be drill'd in to great Profit; which I make out in this manner, *viz.* In the first place, the Land need not be dung'd for this Purpose, because the fine Earth that falls of itself on the Seed, as soon as it is dropped out of the Hopper, will

will sufficiently supply it, by maintaining the Crop in a fertile Growth all the time after : And when the *Dutch* Hoe has been employed twice the same Summer (if once will not do) for clearing the Intervals of all Weeds, the Roots of the *French* Wheat will receive an Augmentation of Nourishment ; and thereby be the better enabled to push on the Growth of its large high Stalks, and blooming Ears, with greater Expedition, than when the Seed is sown in the promiscuous or Broad-cast Way ; because, by the twelve Inches Intervals, the Sun and Air have free Liberty to come at them with their benign Influences, that very much tend to forward the Ripening of all Vegetables they have a roomy Access to ; which is one (among many others) of the great Benefits attending the Drill Husbandry, that the random-sown Seed, and its Branches, is very much deprived of : A Benefit that is more than ordinary necessary here, because the sooner the *French* Wheat is in Blossom, the sooner it may be plow'd in to dress the Ground for a Crop of natural Wheat, and have the more Time to rot, and thoroughly mix with the Earth, against the next *October* Sowing-season. Now the Advantage of sowing *French* Wheat in the Drill-way, for preparing Ground to sow a Crop of natural Wheat on the same, is this : It saves the Charge of the greatest Part of twenty or thirty Shillings, necessary to be expended for Dung or Manure, and its Carriage to the Field, to dress only one Acre of Land ; an Article of great Consequence to all those who rent or own inclosed, sandy, gravelly, or dry loamy Soils : For, in dressing ten, twenty, thirty, or more Acres of such Land, there may a great Sum be saved by this very means of sowing *French* Wheat-seed in Drills ; and the more, if the Ground lies at a considerable Distance from the Farm-house ; for there

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is a wide Difference between the Expence of seven Shillings and thirty Shillings. If fifteen Loads of Dung be laid on one Acre of Land, to dress it for a Crop of natural Wheat; this, and its Carriage, is worth thirty Shillings at least; when for three Pecks of *French* Wheat-seed and two Hoings, the Charge will amount to but about seven Shillings an Acre, and yet will answer the Farmer's Purpose as well as Dung, and the better, as the Earth is kept cleaner from Weeds, than when *French* Wheat grows promiscuously on it; and as much in a fine Tilth, as if nothing grew on it in all the fallow Summer-season. Likewise, when this drill'd Wheat is arrived to its blooming Growth, it may be then mowed down, and scattered by Fork all over the Land, ready for the Swing, or other Plough, to work across the Ground, and plow it in as well as if it grew in the random Posture. Another Way to improve *French* Wheat, is to sow it in Drills with Turnep-seed in the Intervals, in Opposition to that before-mentioned; which gives an Account, how a Farmer sowed his *French* Wheat-seed and Turnep-seed together, by broad-casting them over all the Ground; that, consequently, produced poor little Turneps, and did the *French* Wheat some Harm besides; for, as they grew in this Posture, there was no such thing as hoeing the Turneps; therefore they must grow, as it were, in a wild manner, be rather more Leaf than Root, and greatly impoverish the Ground by drawing them; and the more, if it was not first dung'd before the Wheat and Turnep-seed were sown; whereas, by drilling-in the *French* Wheat-seed in Drills, at four Feet asunder, and sowing the broad Intervals with Turnep-seed in a fine Earth, without any Dung or Manure, the Wheat and Turneps may be so cleverly hoed, as to cause them both to be large Crops, if a kind

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Season of Weather attend their Growth. It is then a Profit may be raised, much superior to that got by sowing *French* Wheat and Turnep-feed in the Random-way; because the Stalks of the first, and Roots of the last, will, by drilling and hoeing, be abundantly larger than them, and sooner ripe, for ploughing one in, and drawing the other; and, after the *Dutch* forward Turneps are so drawn, and sold off, the *French* Wheat may be mowed as before, and with Forks scattered about, and ploughed-in for a Dressing to a succeeding Crop of natural Wheat; where, I suppose, it will do altogether as much good as the former *French* Wheat sown in the Broad-cast way did; because there will be near, if not quite, as much of it grow in Drills, as in the other Posture: Or, if a Person thinks fit, the Turnep-feed may be drill'd as well as the *French* Wheat-feed, in Drills at fifteen or eighteen Inches apart, and especially where a Crop of this Wheat is to stand for Seed; for then natural Wheat-feed may, in *October* following, be sown in Drills made in the middle of each of the former Intervals: And thus all the three Crops may be made to redound, in a very great degree, to the Farmer's Profit; because, by this very means, all Charge for Dunging or Manuring is here intirely saved.

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## C H A P. V.

### *Of Barley.*

**H**OW to sow Barley with Success in this Month.—

It is an unusual thing to sow Barley in this late Month; but, as it has been done, and a good Crop succeeded, it may be so again, provided

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the following Precautions be well regarded : and they are these, viz. First, the Ground that may be put to this Use, should be a fine, dry, rich Soil, or a fine, dry, poor one, well-dung'd before-hand, or afterwards manured. Secondly, the Barley-feed, if sown naked, should be the *Fulham* or *Putney* Sort, or a Sort that came last off a sandy or other warm Earth. Thirdly, whether it be a Barley that came off a sandy or any other Ground, it ought to be first steeped or infused in a proper Menstruum or Liquor, and limed before Sowing, to prevent the pernicious Effects of too dry Weather (that now may be expected to follow) from retarding the Growth of the Barley-crop. These things premised, I shall proceed to direct the Sowing of the Seed.

*A new and very cheap Receipt, how to steep Barley-feed for fertilizing its Crop in the driest Season, by the Infusion of Copperas.*—Get a large Tub ready, and put therein a wooden Tap, or brass Cock, with a Tap, Wisp, or roundish Basket, to keep the soaked Barley from choaking, or stopping up the Mouth of the Tap or Cock. When this is done, heat as much Water as will near fill a Pail ; and, when it is heated scalding-hot, put in three Pounds of green Copperas, that, with stirring about, will quickly dissolve ; then directly pour this Copperas hot Liquor, by slow degrees, all over three Bushels and a half of Barley, as it lies in the Tub ; and likewise as much cold Mudgel, Hole, or Dunghil, or black Ditch-water, as will lie four or six Inches above the Barley-feed, which are all to remain in this Posture from one Evening to the next, when all the Liquor is to be drawn clean off, and the soaked Barley laid in a Heap on the Ground, to lie and drain all Night : In the Morning, spread the Barley somewhat into a roundish Flat, and sift flak'd Lime

Lime over it, which mix well with a Shovel, and so again, till you think the Barley has lodg'd a thick Coat of the Lime; then put it into a Sack, and go to Breakfast for half an Hour; and by the time the Ploughman is ready to sow it broadcast, I will engage it will be full dry enough for his Hand. This Quantity just sows an Acre of Ground, that must be harrowed-in according to the Directions I have given in my modern Husbandman for the Month of *May*: And for steeping and preparing more Barley-seed ready for farther sowing the Land, take the old Copperas Liquor every time, and return it into the Tub again; and steep three Pounds of Copperas more in hot Water, to be used in the very same manner you did the first; and add Dunghil, or other black Water, to three Bushels and a half of Barley-seed, that is to be limed and sown as the last was. Thus you may proceed from Day to Day, getting your Barley-seed completely ready for sowing with so little Trouble and Cost, that, in Consideration of the very great Advantages attending this excellent Piece of new Husbandry, no one, in my humble Opinion, has the least Reason to grudge their Time, their Labour, nor their Expence, on this Account. As to the Time and Labour requisite to be spent in the Preparation of the Barley-seed, it is no ways detrimental to the Farmer's Interest; because the Ploughman, if he lives in but a Farm of eighty Pounds a Year Rent, would do little or nothing the mean while: And as to the Charge of the Copperas, I have bought it several times in the Country for Two-pence a Pound at the worst hand; which makes me believe, it may be had cheaper in *London*. Who then would grudge to bestow Six-pence on every Acre of Land that is to be sown with Barley, when perhaps this small Sum may be the Cause of getting the



the Farmer four Pounds? Which I pretend to prove the Chance of, thus: I will suppose the Soil to be a Chalk, a Sand, a Gravel, or dry Loam; for these are the properest Sorts for producing the best Barley, and the biggest Crops of it: And that one of these has been ploughed till it has been got into a pure fine-powder'd Tilth, and richly dress'd; for Barley, beyond all other Field-Grain, demands these two Requisites. I will also suppose, that a long dry Time directly follows the sowing an Acre of Ground with all dry Barley-seed; If so, how should such dry Seed, sown on warm dry Land, come up in a regular Growth; since the Earth, in this Condition, is not able to do it, by reason the Barley-corns lie in three several Depths, or Stratum, of the Ground, where the Sprout of the lowest will in course appear first, because here the most Moisture and Shade attends it? The next upper Seed will succeed; and the last, or that which lies nearest the Surface, will consequently be the latest in its Growth; and thus hold it till Harvest, if Rains keep off for seven, eight, or more Weeks together, as in some dry Summers it has done. In this Case a Person has little Reason to expect more than three or four Quarters of Barley, at most, on an Acre, in Return for sowing four Bushels of Seed; because, at Harvest, some will be ripe, some half-ripe, and some in its Hoss or green Ears: But when the Barley-seed is duly steep'd and limed, the Crop, in the driest Time, will sprout almost all together, and continue its Growth, till it gets Blades broad, high, and thick enough to shade its Roots; and then such Cover alone, with the Help of Dews, will carry it forward, till it arrives to a fine, large, full Crop, that undoubtedly will produce six, seven, or more Quarters, from off every Acre of Ground, in a true, even Order

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of Ripeness, and mostly of one Bigness, that qualifies its Corns to make the best of Malt.

*A farther Account of the Benefits attending steeped Barley-feed.*—And what I have farther very particularly to remark on this Subject is, that the Steeping of Barley-feed mostly redounds to the Farmer's Interest, when the driest Summers happen; for then they who sow this Seed dry, have the least Crops, and those of the worst of Barley, which, in course, raises the Price of this Grain to twenty, five-and-twenty, or more Shillings a Quarter; and this for a Medley of unripe and unfizeable Corn; which certainly gives those Farmers, who steeped their Seed, a superior Opportunity of selling their ripe, plump, even Barley, for Shillings more a Quarter, than those can who sowed their Seed dry. This leads me likewise farther to observe, that in my said Book of Husbandry for *May*, I have published a Receipt, how to make a Composition with Nitre for steeping Barley-feed therein, and preventing the Mischiefs that a long dry Season may bring a Crop of it under: But, as Nitre is rather too chargeable for many Farmers Pockets; it has discouraged Thousands from making Trial of it, though it would certainly be to their vast Advantage. I have therefore been induced to publish this most cheap Copperas Receipt, that I myself have several times made use of to my great Benefit; for which Reason my Readers may depend on its being wrote from the Field of Practice: And I hope this plain Account of its Success, and the small Cost of the Ingredient, will tempt great Numbers of Gentlemen and Farmers into the frequent Use of it; for if once it becomes a general Practice to sow steeped Barley-feed, I am sure the Nation, in a great measure, will be delivered from that infinite Damage, that, in some dry Summers, attends Barley-

ley-crops, whose Seed was sown in the old naked Manner, and mowed in two or three Degrees of Growth; for then it is impossible to make a true Malt of it; and if the Malt is not good, I am sure the Ale and Beer made from it cannot be so; and then what must those People suffer, whose Number are by far the greatest Part of the Kingdom? Why, they must drink a poor wretched Malt Liquor; and the worse, when it is brewed in a wrong Manner, abused by the too-long Boiling of Hops into a nauseous unhealthy Bitter, and loaded with the deadly, saline, and sulphureous Tincture of a large Quantity of Yest, that has been beating into Ale a Week, or more, together in Winter, and a few Days into that and Butt Beer in warmer Weather, for saving, perhaps, two Bushels of Malt in eight, which such Male-practice will certainly effect; and yet the Drink will be full as strong, as that brewed from eight Bushels, in the fair honest Way of brewing it.

*The ill Effects of sowing Barley-seed dry in Drills,*  
 — This dryish Summer, 1743, manifestly proved the ill Effects of drilling Barley-seed dry; for, in the several Fields that I beheld in my Journeys this Year, I saw not one of them under a full Crop of drill'd Barley, because the Seed was sown dry and naked out of the Hopper of a Drill-plough; and, as it was sown dry, the small Showers that happened, afforded not sufficient Moisture to bring forward a plentiful Crop. A Field of Barley, sown in Drills, requires rather more Rain than when it is sown broad-cast, by reason the Seed lies deeper, confined in a more narrow Compass of Ground, than that harrowed in. Now, as the Barley is sown thus in Drills at a Foot asunder, the Sun and Air have great Room to come at, and dry the Seed, or its Roots, more than when the Seed

is sown thick in the Random-way, where their Roots and Stalks grow so close together, that one helps to defend the other against the Damage of Droughts. In Drills the Barley-feed lies so thick, that, when it is sown dry, one Seed hinders another, in a small Degree, from sprouting into a regular Growth, if Rains do not fall in time, and in such Plenty, that all the undermost, middlemost, and top Seed have their full Share of Moisture; if they have not, I am sure there will not only be a very scanty Crop at Harvest, but the Barley will be of two or three Sorts of Growth; which leads me to consider the Benefits that attend Barley-feed first steeped in a fertile Liquor, and then sown in Drills by a Drill-plough.

*The good Effects of sowing steeped Barley-feed in Drills.*—As this is a Summer-Corn, and has but a few Months to perfect its Crops in, and they the hottest, and commonly the driest, in the whole Year, the Seed requires a moist Assistance the more, to bring on its Growth in a regular and due Order. Barley sown in narrow Drills, some of it will be ripe sooner than others, and produce both small and larger Ears at Harvest, according as the Seed lies bedded in the Drill for enjoying more or less of the Earth's Assistance, a Fault that consequently attends drill'd Barley, if Rains fall in Season; but if they do not, the Evil is increased. Hence then comes in the great Benefit of first infusing the Barley-feed in a fertile Liquor, that gives all Seed, steeped in it, full Room to imbibe as much of it as they can receive; and when it is saturated, and received its full Quantity, it carries the same into the Drill, under a nourishing Coat of Lime: And whether Rains fall, or not fall, in time, the Barley-feed will sprout almost all at once, and push on a Growth of green Blades and Stalks with great Expedition and Strength; and Expedition

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is one great Means for enjoying a full Crop of Barley in its highest whitest Perfection, because it will be ripe, while the Days are long, and the Nights short; which gives the Farmer the best Opportunity of curing it after mowing, in the Field, and housing it in dry Order afterwards.

*Why Vale Farmers ought to steep their Barley-feed before Sowing.*—By this time, I think, I have made it fully appear, how much it is to a Farmer's Interest to steep all his Barley-feed: And, therefore, the Copperas or Nitre-Receipt ought to be put in Practice by both *Vale* and *Cbelturne* Farmers, whether they sow their Barley in the Random or the Drill-way. I have heretofore wrote largely on this Account, how steeped Barley is to be sown by a *Cbelturne* Farmer; and now come to be somewhat particular in Behalf of the *Vale* Farmer. As to a *Vale* Farmer, whose Land is of a clayey or stiff loamy Nature, I cannot say it is for his Benefit to sow Barley in Drills; but I say this, that although he sows it broad-cast, it is much his surer and more profitable Way to steep his Seed first, as I have before advised; because, by this, he is delivered from the Damage of Droughts, that may directly succeed his Sowing, for aught he knows, and hold for Months together; and then his Crops may turn out but half his usual Quantity. Or, secondly, if Rains fall in due Order and Time, his steeped Seed, carrying with it a great deal of fertile Liquor and Lime into the Ground, will certainly enable it to become the greater Crop. Or, thirdly, in case his *March* sown Barley is flooded by *April* or *May* Showers, that may fall in such Quantities as to drown the lower Parts of the Ridge-land, and keep the Barley-roots under Water for some time; then, I say, it is, that the steeped Barley will sustain such Damage better than naked-sown Barley; because

because the steeped will get a stronger Root sooner than the other. Or, fourthly, if Rain happen to fall in hasty Showers presently after the Barley is sown, it sometimes occasions the Surface to run into a Pancake Consistence; and if a dry Time presently succeeds this, the top Earth may become so crusted and hard, as to hinder many of the infant Sprouts, or Blades, from making their Way into the Air; and then, in course, great Part of the Barley-crop will be lost: But, by sowing steeped Barley, the Farmer has no Occasion to be under any Apprehension of this sort; for if such Weather should chance to follow the Sowing of the steeped Seed, the Blades will make their Way through, as having sufficient Strength at their Roots to maintain them in a vigorous Growth. But there is a farther Advantage than what I have here observed, attending steeped Barley-feed: Any *Chelturne*, or *Vale* Farmer, may, with some Assurance, sow such Seed late, even throughout *April*, or in the Beginning of *May*, and yet have good Reason to hope for a plentiful ripe Crop in due time. This is one great Perfection of steeping Barley-feed, which I pretend to prove thus: Suppose a Farmer is hindered by either Multitude of Business, or by a long Season of wet Weather, from sowing his Barley-feed till even *April*, or early in *May*, and he should then sow his Seed in the naked Way, he must certainly run a very great Risque of getting a full Crop of Barley; because, if dry Weather should succeed, the Mischiefs I have before mentioned will consequently ensue, to his great Loss: And, if a warm rainy Season should follow, there may be a great deal of Straw, and little Corn; whereas, when the Barley-feed goes into the Ground full-steeped and limed, it will directly, with great Expedition, grow up, and join Assistance with the Rain, to

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propagate and forward a great Crop of Corn. I know a Farmer, who finding himself necessitated, thro' Multitude of Business, to defer sowing his Barley late, and who, having no Notion of any Ingredient that could tend to the multiplying of late Barley-seed, he steeped it in common Water, limed it, and sowed it; and though his Neighbours had sowed their naked Barley-seed a good while before he did his, yet his Barley was ripe as soon as theirs, and a much better Crop. Now, to all this, I have farther to observe, that Gentlemen, or Farmers, may proceed thus far in sowing steeped Barley-seed, either in broad Lands or Drills, and yet miss of a good Crop, without having Reason to impute the Miscarriage to the steeping Part; for, where the Ground is not beforehand duly prepared by several Plowings, and brought into a fine Tilth at Sowing-time, it may be the Means of hindering a full Crop at Harvest; or if Rains fall in the Time of sowing, or harrowing of the Seed in, it may occasion the Loss of great Part of the Crop; or if severe Frosts happen in *April* or *May*, it may so check the Barley-crop, as to spoil the major Part of it, or do it a lesser Damage; and the same by Inundation of Waters.

## C H A P. VI.

### *Of the Improvement of Beans, &c.*

**H**OW some Farmers have Opportunities beyond some Gardeners, to sow and improve Crops of Beans, Peas, Turneps, Carrots, Parsneps, Potatoes, Cabbages, and several other Vegetables.—A Farmer, especially one who rents an inclosed Farm, and can

can with more Assurance call his Crops his own, than he who rents his Land in open Fields, has some Opportunities equal with a Gardener, to propagate several Sorts of Vegetables, and even better than he can in respect of Room; for there are many Gardeners that live altogether by their Profession, and rent Ground that does not give them the Liberty of making use of a Plough, by reason of the narrow Quantity of their Land, or that Fruit or other Trees, or Shrubs, or culinary Vegetables, which are sown in most Months of the Year, stand in the Way, and oblige him to do all his Work by the tedious and chargeable Spade, which, although it may perform its Operations better than the Plough, because it may be made to dig deeper than the Share can go, yet a Plough, in some other respects, will do its Work as well as that antient Tool, and discharge more in one Day, than twelve or twenty Men can by the Labour of any Hand-Instrument; which renders the Gardener's Charge for preparing his Ground for Sowing, much greater than a Farmer's, who, having a great deal of Room at a smaller Rent, has the Liberty of enjoying Crops of Turneps, Carrots, Parsneps, Potatoes, Beans, Peas, Cabbages, Onions, and many other Things, in the cheapest Manner possible; and the more, since the excellent Drill-plough is invented, that will sow large and small Seeds out of it in the truest and most expeditious Way; insomuch that no Man's Hand can sow Seed so true as the Drill-plough can, and which will make more Drills, and sow more Seed in them in one Day, than many Men can in the same time. The like Conveniency may be enjoyed by the Use of the new-found-out profitable Horse-break, which, in a Field, will hoe up more Ground between Beans or Peas, &c. in one Day, I believe I may say, than ten Men can



do. And it is like to prove a happy Invention not only to the Farmer in particular, but likewise to the Nation in general; because these new Machines, with several others (I may say many), that I intend to discover in my future Works, will not only save him great Expences, and bring him in a great deal of Profit; but they will be the Means of employing many poor Men, who would not be so much employed, had it not been for these Instruments. This I pretend to prove, by asserting, that as one and the same Field may be every Year sown with Grain for Time out of Mind, without making it lie fallow, there will be much more Corn got than in the old Husbandry; and consequently more Reaping, Mowing, Threshing, and other Work done by poor Men, as well as Hoeing; for though the Horse-break hoes and turns the Earth besides, two different Ways; yet the Hand-hoe comes in afterwards for some Labour to pull the Mould closer to the Stalk, than the Break can safely do, if a Farmer is not a very great Sloven indeed. Thus, I hope, I have made it appear, in some Degree, that these new Instruments are of great Service to the Farmer, who, as he is the chiefest Artificer in the Nation, ought to have the most extensive and most beneficial Assistance given him of all others whatsoever.

*The Method and Benefit of sowing Broad or Hotspur-beans in this Month.*—The Sowing of Beans so late as in this Month, is practised but by very few Farmers; and they must be those who are Masters of warm rich Soils. Here indeed they may be sown in an inclosed Field; but they must be of the Hotspur-kind, as the *Venetian*, the *Spanish*, or the *Portugal* Bean; for these, being of a forward growing Nature, especially if they have been directly imported, and not sown in *England* before, will prosper and bear much, though they are

are sown the earliest and the latest, even from *October* to any Time in this Month; if now, they ought to be sown in Drills, and not set, because they will, in the former Way, make their Growth quicker than in the latter; and quicker and more fertile still, if the Seed is first prepared according to Art, as I shall presently shew: But these Sort of Beans cannot be sown out of any Drill-plough so well as the Hand, as some think: However, hereafter I hope I shall be able to convince them, they may be better. In the mean time, I shall proceed to my intended Purpose of discovering a new Improvement for forwarding and increasing latter-sown Bean-crops; which ought to be the more regarded, as a very late Crop sells for as much Money as a forward Crop; Scarcity makes the Rarity; and as Art helps Nature, these Beans may be so managed, as to force them to throw out their first Sprout or Shoot in a little time, and be thus made to produce a profitable green Crop, after the broad Beans are ripe, and sold off.

*How to steep broad Beans, so as to forward their Growth with great Expedition.*—This Secret is of great Consequence to all those Farmers who sow these Beans in Fields, for selling them in their green Condition; as is the Practice of many of our *Hertfordshire* Men, who, being Occupiers of loamy Soils in inclosed Fields, make it one Branch of their Business to get Crops of the broad *Windsor*, the *Sandwich*, and the *Hotspur*-beans, to sell in their Pods at Markets, and about the Country. And indeed, since some Farmers have thus engaged themselves in this necessary Branch of Husbandry, the Country has received a considerable Advantage by it; because the Gardeners, who generally rent but little Ground for this Purpose, produced so few, as to cause their Price, disagreeable to the Farmer's Pocket: But now we commonly

monly enjoy a former and latter Crop of them, to our great Convenience: And, that we may do so in the best and cheapest Manner, mix either Coal or Wood-foot with Urine, and in this Mixture steep a Parcel of Hotspur-beans three or four Hours at least, and sow them as follows:

*First Way.*—You may make Drills with a Drill-plough, or with any other narrow Plough, in which these Hotspur-beans may be dropped out of a Man's Hand, at two or three Inches apart, in Drills made at two Foot asunder; then, with one or more light Harrows, the Beans may be easily covered with Mould, and suffered to grow, till they are fit to be improved by the most excellent Horse-break.

*Second Way.*—Or, after the Ground has, by a former Ploughing or two, been got into a tolerable Tilth, you may now, with a narrow Plough, plough the Land into narrow small Bouts, which is performed by laying one Furrow of Earth up against another (an Operation well known to right *Hertsfordshire* Ploughmen, who, I dare presume to say, are the greatest Masters of ploughing Land in various Shapes of any Ploughmen in *England*); by this means there will be a Furrow or Drill at about two Foot asunder from each other, wherein a Man may, by his Hand, drop out those Beans at a proper Distance from each other: But some Farmers think it an easier and more expeditious Way, after the Land is thus lain up in small Bouts, to sow these Beans out of the Hand, after the broad-cast Mode of Sowing, for that they will in course fall into the Furrow; and if any should chance to lodge on the Ridge-part of a Bout, they may be taken and put into the Furrow: And, when the Beans are thus sown, the next Thing to be done is to cover them with Mould; which to do, take one or more light Harrows, and draw

draw them along the Bouts longwise twice in a Place; and then the Operation is over for the present; for they must not be harrowed crosswise at all, lest the Harrows tear up and misplace the Beans, which, when once in their Bed, must not be disturbed in the least, till the Horse-break or Hand-hoe is employed between their Rows, to kill the Weeds that may grow up in the Intervals, and for Earthing up to their Roots, to forward their Growth with the greater Expedition: For which Purpose, this Way of ploughing the Ground in little Bouts, gives the Horse-break or Hand-hoe a great Advantage of pulling down a sufficient Quantity of Earth towards the Roots and Stalks of the Beans; because this Sort of Ploughing, after the Harrows have been made use of, leaves the Mould a little higher than ordinary in the Middle between the Rows, which the better serves to assist and fertilize the Crop of Beans, and is so cheap, quick, and profitable an Operation, that, of late, some of the most acute Farmers who are acquainted with it, follow this very Method of sowing their Peas and small Beans, preferable to all others, where the Ground will admit of it; for in Vale stiff Earths, where the Land is always ploughed one Way, this sort of Ploughing and Sowing cannot be performed, nor where the Land is too stony: Which shews how necessary it is for a Ploughman to be thoroughly acquainted with his Business; as I shall farther observe.

*How necessary it is for a Ploughman to be Master of his Business.*—A Gentleman sent me a Letter, which I received in *February* 1743-4, to help him to a Ploughman, that knew how to manage various Soils; and gave me a Commission to offer such a one very large Wages: In order to which, I sent him one that I had qualified for the Purpose, by taking him with me into two other Counties besides

besides that I live in, and made him hold their different Ploughs, and other Instruments, which he was a Stranger to before ; but, as he was brought up to the Plough in our Country, he presently took the Knowledge of others, even in less than two Days time : And when I had made him thus Master of his Business, he was capable of holding any Sort of Wheel-plough, Foot, or Swing-plough, Drill-plough, or any other Plough or Instrument of Husbandry ; which enabled him to plow any Soil, and sow it with any Seed, as the Nature of the Land admits. Now this Gentleman acted more prudent than those who have sent to me for Ploughmen, and tied me down to a mean Price of Wages ; because, according to the Wages, so they may expect the Ploughman to be : And if he is one that is accustomed to hold only one Sort of Plough, he is not capable of plowing various Soils ; for, according to the Nature of the Soil, and its Situation, so should the Plough be. Thus when an unqualified Ploughman comes into a strange Country, and he is to hold a Plough he never did before, and to work a Soil he never was used to, he must consequently be at such a Loss, that before he can get Master of his Business here, he may do his Master many Pounds of Damage. This is a Matter of such Importance, that it concerns all Gentlemen who hire Ploughmen, to work in different Soils, strictly to take care they get them that are capable of managing and improving them ; for upon this Servant's Care and Skill depends the chiefest Part of the Farm's Profit : And therefore, whoever send to me for a Ploughman, that is to be concerned in working various Soils, they ought to give me an Order to allow him encouraging Wages ; and, if he is not already, to get him qualified, as I have before hinted ; then, I am sure, he will answer their Expectation,

pestation, by proving, that, for a little extraordinary Expence, they'll stand a good Chance of getting a great Profit.

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## CHAP. VII.

*Of Sowing Peas in May, Hoeing them, &c.*

**H**OW this Author sowed the great Union blue Pea in Drills in this Month.—I am prompted to write this Chapter with the greater Pleasure, because I am sensible there are many brave Crops of Peas lost on account of Persons Ignorance, who, believing it too late to sow Peas in this Month, forbear to do it; but I assure them it is a wrong Notion, either if they are designed for a green or a ripe Crop. On the 12th Day of May 1744, I drill'd-in the great Union blue Pea between my Rows of broad Beans in my Home-clofe, when the Beans were about four Inches high; and on the 31st Day of May, the Peas, having had a Day's Rain on them about a Week after they had been sown, were about two Inches high, and likely to be a good Crop green or ripe.

*How a Person sow'd a large white Pea in May, and made a considerable Profit of them.*—An early or a late Crop of green Peas is well known to sell for the greatest Profit. A Neighbour of mine sow'd some large white Peas the latter End of this Month, and sold them in September in Pescods or Shells for a good Price; and for this Purpose, I shall hereafter give an Account of a Pea sown in July, that was so forward a Sort, as to yield green Pods in a Garden before Winter.

*An Account of the quick Growth of a whitish Pea called the nimble Pea,*—I was told that Sir ———  
F Twisden

*Twisden* had a Sort of Peas sown in his sandy Land, called the Nimble Pea, that was ripe at seven Weeks End in 1743, being the second Year that this Sort of Pea had been made use of in his Part of the Country: They were sown out of the Drill-plough, and horse-break'd.

*The Growth of the excellent Carolina Pea.*—

This large whitish Pea, that is ripe early, and almost at one and the same time, was sown in an inclosed Field in Drills out of the Three-wheel Drill-plough in *April*, at two Feet asunder; and about the Eighth of *May* 1744, was horse-break'd for the first time, with one Part of the Breaks Irons, just to stir the interval Ground, and prevent the Growth of Weeds: And a little before they began to blossom, they were horse-break'd a second and last time, when the superficial Mould was turned on the Roots to their great Support and Nourishment; for on the 25th Day, these Peas were fourteen Inches high; and though they were sown in a poor, pebbly, hungry, gravelly Soil; yet by this excellent new Husbandry, performed by the plainest Instruments that were ever invented, this Pea-crop made as fine a Shew as ever I saw in a Field in my Life; for this Horse-break is so ingeniously contrived, that the three small Hoës may be easily and presently taken up, so as not to go too deep into the Ground, or flower'd at Discretion, for causing them to suit a hard or soft Ground: And so the Land-iron may be set wider or narrower, from nine Inches to a greater Width, for turning the Mould to the Rows of Peas, as the Ploughman would have it. Now there are three Sorts of Horse-breaks that I recommend to be made use of, according to the Nature of the Ground; and therefore those Gentlemen who shall think fit to employ me to furnish them with these new and plain Instruments, shall have

have those that best suit their Soil; which is a Matter of great Importance, and ought to have a Regard paid to it accordingly; because on this this very much depends the Success of Pea and Bean-crops. In *May 1744*, I was desired to ride with two Gentlemen about the Country, to shew them some Curiosities practised in the Art of Husbandry; and, amongst the rest, their greatest Admiration was, to see Pea-crops so very large and forward in this Month, that had been sown out of the Hopper of the Three-wheel Drill-plough, and twice horse-break'd afterwards: But they were most of all surpris'd at the Sight of such plain-made Instruments; for one of them had been a Spectator of the very ingenious Mr. *Tull's* Contrivances, and said, his were made in such Nicety of Order, as perplexed the Understanding of a shallow Capacity; and so chargeable and difficult to make and mend, as discouraged many to come into their Use.

*Hand-hoeing Horse-beans.*—Near *Harrow the Hill* in *Middlesex*, on the 12th of *May 1742*, I saw them hoeing Horse-beans with Hand-hoes, that were set across their stiff wettish Lands by Women, with a sharp-pointed Dibber, in Rows about eighteen Inches asunder; and, being thus twice hoed, they paid their Owner much better than those Horse-beans that were sown and harrow'd in the promiscuous Way; for, as it was a dry Summer, the last was a very poor Crop, by lying shallow in the Ground, and being dried so much by the Sun, as almost spoiled them; while the set and hoed Beans, by lying deeper at first in the Earth, and afterwards being assisted with the Cover of hoed Mould on their Roots, became an excellent Crop. The first time of hoeing, they drawed and worked their Hand-hoes along the middle of the Interval; and as soon as the Weeds



were wilk'd and kill'd, they hoed a second time, by pulling the Earth up on the Bean-roots. Here the Horse-break is not known.

*How a Farmer set a Rood of Ground with broad Windsor Beans, and how the Crop suffered by Mice.*

—A Farmer having dunged and prepared a Piece of Ground in his Home-close, about a Rood in Quantity, in *February*, set it with his broad *Windsor Beans* in Rows, at two Feet asunder; and about the 12th of this Month, had all the Intervals broke with Hoes, when the Beans in his loamy cold Soil and Situation were about four Inches high; but it happened, that good Part of his Bean-crop was spoiled by Hog or Shrew-mice, that bit off the Spire below and above the Surface; which they would not have done so much, had he set the Beans in Rows, contrary to the last Way the Ground was plowed in; but instead thereof, he set them the same Way the Ground was last plowed in, which gave the Mice an easier Opportunity to make their Entrance into the Earth in quest of the Beans, as the Land lay this Way looser than if the Beans had been set across the last Ploughing; for these Shrew-mice having their Heads built in the Snout-fashion, like that of Hogs or Moles, dig and penetrate a loose Ground with Ease: And the Farmer had not Wit enough to set up Tile-traps, to catch them in the Field. Now, to make the most of this Rood of Ground after hoeing, he steeped some more broad Beans, in a Mixture of Urine and Soot, two Hours, which is long enough at this Time of Year; for if they are soaked too long in such hot Liquor, and dry hot Weather should succeed, they will be apt to burn and spoil: He therefore made Drills in the Intervals with a Carrot-hoe of three Inches wide, pretty deep, and laid in his broad Beans to come up as a latter Crop, to sell in their green Pods

**Pods** in *August* or *September*. And when all the Beans were laid in the Drills, and covered by Hand-hoes with Mould, he trod the Earth upon them, the better to close it on the Beans, and to keep out the Droughts. In this Part of the Country the Drill-plough and Horse-break was not known.

*A Way practised by the Leighton Gardeners when they sow or set Garden-beans in May, to make them come up in the quickest Manner.*—When they do this, the Beans are designed to be gathered while they are green, for selling about the Country in the latter Part of the Summer, when they expect a good Market for them. For this Purpose, and that they may come up in the quickest Manner, they put their Seed-beans into a Sack or Bag, that will hold them loosely; for if they are put in, and kept in a tight Posture, they will be apt to swell, and burst the Sack or Bag: Then let these Beans lie and soak in Water from Twelve a-clock in the Day till Six next Morning; for by that time they will be soaked enough to spire quickly after they are in the Ground. But this Practice they never follow, but when they set these broad Beans in *April* or *May*.

## C H A P. VIII.

### *Of Clover.*

**H**OW a Farmer had eleven Sheep killed in a Clover-field, by the Shepherd's falling asleep in the same. — On *Thursday* the 20th Day of *May* 1742, Mr. B——'s Shepherd bringing a Flock of Weather-sheep from off *Dunstable-Downs* to a Clover-field that lay near the same, he put them into it as usual, but always watch'd and kept them from ranging farther than he desired; and when he thought they had had a sufficient Bait or Bellyful, he drove them out again to the Common, to remain

main here till Folding-time : But it happened on this Day, that the Shepherd fell asleep in the Clover-field, and let the Sheep range all over it at their Pleasure, till eleven of them, by feeding very greedily on this windy artificial Grass, were so near bursting, as obliged the Farmer to have them directly stuck by three several Butchers, which he sent for in all Haste to prevent their bursting. These eleven Sheep were worth fourteen Shillings a-piece as Store-sheep ; but, by this Accident, the Farmer made but little of them ; for he gave a great deal of the Meat away, and the best he sold for but Six-pence a Quarter.—Therefore beware of the like Danger ; for, by such means, a Farmer may lose a whole Flock of Sheep in an Hour or two's time.

*How the Author had some of his Cows hosed in Clover, and how he recovered them.*—We Chelturne Farmers find it one of the most profitable Pieces of Husbandry to get Clover ready in this Month to feed our Horses, Cows, Sheep, and Hogs, notwithstanding the great Risque we run of losing the Lives of our Cows and Sheep. As to the first of these, my Way is (as I have heretofore described), to give each Cow, the first Morning they are turned into the Clover-field, an Egg-shell full of Tar, as the best Antidote we know of, to preserve them against the ill Effects of this windy Grass : And when once, by the Safety of this Remedy, they have filled their Belly, and emptied it, we reckon the Danger pretty well over of their bursting. However, there is some Danger still remaining, especially in a dewy Morning, or after a Shower of Rain, which increases the hoving Quality of this Grass : And it so happened, that I had now-and-then a Cow hove by the same. But, as we are sensible of the approaching Danger, we watch the Cows the more narrowly ; and, upon perceiving

perceiving their swelling or hoving, we drive them out of the Field, and immediately have the Cow held by the Horns and Nostrils; and with an Horn I gave her three Pints of Urine mixed with an Handful of Salt, and ran her about for a Quarter or Half an Hour; and, when taken in time, it never fails sinking the Swelling, and recovering her; else I had lost several in 1743 and 1744.

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## C H A P. IX.

### *Of Weaning Grass-lambs.*

**O**F *feeding suckling Ewes for fattening Grass-lambs.*

—By *May-day* all Field-turneps are generally eaten off, as well as that Rye which was sown in *August* or *September* last, for feeding suckling Ewes, and their Grass-lambs: Rapes or Cole likewise that was sown last Year for feeding Ewes and Lambs in the Spring-season, is by this time generally eaten off; so that there remains hardly any other Field-food now than natural and artificial Grasses, and green Corn; which obliges the Meadow-Farmer to give over suckling his House-lambs, that now are chiefly out of Season, by reason the Grass-lambs succeed in full Perfection, as having Meat in great Plenty, in inclosed Fields especially: And therefore I shall here give a new Account how we feed our Ewes and Lambs in this Month on artificial Grasses, and green Corn, in order to fat them for Market.

*To feed Ewes with their Lambs on green Oats.*—This Piece of Management is mostly confined to inclosed Fields; because here we can put Ewes and Lambs in, and take them out at Pleasure in the cheapest Manner, free of the Charge of a Man

Man or Boy's Attendance to keep them from straying into a Neighbour's Ground; which is what can't be done in open Fields, where several Persons Land and Corn lie together: And therefore that Farmer who rents inclosed Fields, and don't sow Turneps, Rye, Rapes, and artificial Grasses, or some of them, for feeding his Ewes and Grass-lambs, is much wanting to his Interest; for by these, many *Chelturue Farmers* fat great Numbers of Grass-lambs, which help to pay good Part of their Rent at an easy Rate. Formerly most Farmers were afraid to feed down their green Oat-crop, lest the Cattle spoiled it; but Experience has proved, that this may be done to a great Advantage or Disadvantage: Which being a Knowledge of considerable Consequence, I shall here attempt to shew how the first may be done, and how the last is to be refused.

*How to feed Ewes, with their Lambs, to a great Advantage, on a full Crop of green Oats.*—To do this, the Nature of the Ground, and the Season of the Year, ought in an especial Manner to be regarded. If the Land is of the dry Sort, and in good Heart, and a kind moderate Season succeeded, for some time, the Sowing of the Oats, those sown in *February* or *March* will now shew themselves with broad Blades, in a spreading curling Condition, under a black green Colour, that seems to grow so rank, as to threaten the Farmer with a great Loss, if they are not eaten down in this Month with Sheep and Lambs, by growing so rank afterwards, as to fall and be laid flat before Harvest; and then the Crop will in course be good for little, as consisting of a great deal of Straw, and little Corn; and those Oats that are, will be perhaps but half ripe, half-size, and half in Quantity they would otherwise be. Here the sucking Ewes, with their Lambs, may be turned in

in to graze under the following Preparation : First, a Day or two before they are turned into such green Oats, the Ewes and Lambs should be fed on natural or artificial Grass, that they may be glutted with their Belly-full of Meat, in order to prevent their too voracious feeding on such green Oats, lest they crop and eat them directly down so low as to damage the Crop ; whereas, if they are first fed on Grass, they will either feed on the natural Grass of Baulks, if there be any in the Oat-field, or pick and eat out the Weeds among the Oats ; for if they, through Hunger, crop the Blades of the Oats too much, they should be taken out and shifted into another Field in due time. Secondly, In case the Spring has hitherto been attended with Frosts, or Chills of cold Rains, so that the green Oats are very short indeed, the Ewes and their Lambs should be kept out till they have acquired a Head capable of sustaining their Bite without Damage ; then a Farmer may enjoy a fine grazing Crop, without (if he takes care accordingly) hurting his Oat-crop ; which will be an extraordinary Profit to him, even (it may be) to the Value of ten or more Shillings an Acre ; for by such a plentiful Feed at this Time of Year, the Farmer's other green Meat is saved, and made to hold out the longer hereafter, under the Feed of Sheep and Lambs, or other Cattle, the Ground cleared of choaking pernicious Weeds in the cheapest Manner, and greatly enriched by the Stale and Dung of the Beasts, and the Oat-crop by this means forced on in a quick, rank, branching Growth, that very likely will produce not only a greater Quantity of Straw than ordinary, but likewise perhaps Quarters enough of full large Oats, of every Acre so fed and improved. This Case shews the Excellency of dunging and manuring Ground in full Perfection for a Wheat or

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Barley-crop; because, by so doing, the Land is got into such Heart, as to bring on early full green Crops of Oats fit to feed the Ewes in this Month, and breed Abundance of Milk in them, for fattening their Lambs with great Expedition. The Lambs also are hereby tempted to feed on the green Oats and Weeds; which being a fresh Bite, and a new Food, they will greedily eat, and meet with Plenty of Milk besides. But these are not all the Advantages accruing from an early full Crop of green Oats; the Ewes, at the same time, will get themselves forward in Flesh, so as to fat the sooner for Market after the Lambs are weaned off; or, if they are to be kept on longer as Store-sheep, they will take Ram the sooner, and be the better enabled to withstand the Severity of a hard Winter. Now this great Improvement that is to be thus made by obtaining an early full Crop of green Oats, happens more surely to those Farmers who dung their Land directly for an Oat-crop, and not for a Wheat-crop, as many observe to do in *Suffolk* and *Essex*, &c. to prevent Weeds and Smut happening to the Wheat-crop; for Oats sown under this Management are not in danger of being hurt by Weeds, because they may be fed off by Sheep and Lambs, as aforesaid: And if they are not check'd this way, the Oat-crop in such rich Ground will surely overcome, and keep down the Weeds: But, as there is a bad Property belonging to this Sort of Husbandry as well as a good one, I shall, in the next Place, endeavour to give some Account of the same, for the better preventing Persons falling into the too common Mistake of feeding a good and bad Crop of green Oats in one and the same Manner.

*The great Disadvantage that may attend feeding Ewes and Lambs on a bad Crop of green Oats, &c.—*  
In this Account I am obliged to turn the Tables, and

and write of the great Loss a Person is liable to suffer, who imprudently feeds his Ewes and Lambs on a poor Crop of green Oats. When Oats are sown on a lean dry Soil, the Corn has enough to do, without any checking, to grow into a tolerable Crop, though a propitious Season of Weather attends it: Wherefore, if a Farmer should be so silly as to turn his Ewes and Lambs in here, to feed on the green Blades of Oats, it is ten to one odds, if he does not ruin his Crop by it; because the Oat-roots in such a barren Soil have not a Fund of Fertility to bring and push on a Regrowth of their Stalks and Blades, sufficient to overcome the Weed, the Slug, or the potent Heat of the Sun, in a long dry Time; as has been the very Case of many ignorant Persons, who, for want of Plenty of other green Meat at this Time of Year, have presumed on the Assurance of a plentiful Crop of Oats, notwithstanding they have fed them down in a poor Soil with their Ewes and Lambs; and so have brought themselves under a Loss, of almost the whole Crop of Oats. This Case likewise affects those Farmers who, having set on an Oat-crop in a clay or stiff loamy Soil, venture to feed their Ewes and Lambs on the green Blades, though the Weather be so wet as to cause them to tread and graze the Oats with their Feet, and thus do them more Damage than with their Teeth. These are two extreme Pieces of ill Husbandry, which ought to be avoided by all prudent Farmers, lest they ruin the greatest Part of their Oat-crops. The best Way then is certainly to feed a Crop of green Oats with Sheep and Lambs, before the Stalks are high enough to be on the Spindle; and when Oats grow in a dry rich Earth, or when they grow in a stiff Soil, and are fed in dry Weather, while the Ground is in an hard Condition, there may abundance of Profit



be got by it, and yet do the Oat-crop more Good than Harm, provided the Ewes and Lambs are not kept too long in one and the same Field of green Oats; if they are, it may rather retard their thriving than forward it; for all Field-beasts affect fresh Bites so much, that nothing pleases them better, nor causes them to thrive faster, according to the old Maxim, *Change of Pasture makes the Calf fat*. It is therefore, that we carefully observe to take the Ewes and Lambs out of such a Field of green Oats, before they have bit it down too low, and put them into another; and so shift them from Field to Field, as we perceive the Growth of the Crop, and the Dryness of the Ground, will admit. If it is a rich Ground, and a forward full Crop, seven Couples are enough to turn into a Four-acre Field of green Oats, as our usual Stint is; then, if they are not kept here too long, the Lambs will thrive apace: But, of all Degrees of Growth, if the Oats are upon the Shoot, no Sheep nor Lambs ought to feed on them, lest their Bite cause the Stalk to bleed, or run out its Sap; and then a good Oat-ear can never succeed. Again, if Oats grow thin, Ewes, with their Lambs, ought not to be turned into them at all; because where green Meat is scarce, they will bite too close down: And if wet Weather happen in the Time, they'll do Damage, as I said, with their Feet.

*Of fattening Lambs in fallow Fields.*—This may be done with good Success; but then the Ploughing-part must be let alone till late, even till the latter End of this Month; and where the Ground is not of the stiff Sort, it may answer well enough; but where the Land is of a clay or stiff loamy Nature, it is a dangerous Undertaking; because, if a wet Summer succeeds, the Earth cannot be got into a fine Tilth against the next Wheat-sowing Season; and then the golden Crop is attended with a greater  
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Risque of spoiling than ordinary : But there are great Numbers of Grass-lambs fattened, this very Way on only the Grass and Weeds that grow in inclosed arable Fields, in a most cheap Manner, and very early ; for Weeds grow up apace : And by shifting the Couples in due time into fresh Bites, the Lambs will thrive at a great rate, if the Ground is not over-stock'd.

*Of Weaning Lambs on green Oats.*—Others reserve their green Oat-crops purely for weaning their Lambs ; for when they are taken from the Ewes, and turned in here, they will feed and pick out the Weeds, and will hardly meddle with the Oat-blades till they are gone ; and then they will feed on the Oats, and fat fast, if they are shifted into fresh Bites in time, and be thus got ready for Market, or for making Store-sheep of them.

*Of Weaning Lambs in Pea-fields.*—This is so new an Undertaking, that few, very few, dare venture on doing it ; because they are afraid the Lambs will bite off the Heads of the Peas, and spoil their Crop. Those that do this, should be Occupiers of a dry Soil, such as a Gravel, a Chalk, a sandy Loam, or an intire dry Loam, that is kept in rich Heart, capable of pushing forward the Growth of some Crops with great Expedition : And even then, but few Lambs must be turned in, after they have first had their Belly-full of Clover, or natural Grass, to prevent their falling-on and eating the Pea-heads ; which they will be apt to do, if turned-in hungry ; otherwise they will feed on and pick out the Weeds, before they will meddle with the Peas : But if they should chance to bite off here-and-there an Head, they will grow again, and branch the more for being bitten a little, with this Caution, that Lambs ought not to be kept long enough in the Field to feed hard on the Pea-heads and Stalks, lest they  
venom.

venom them, and cause the Loss of so much of their Sap, as will weaken their Growth always after. If Lambs are to be weaned on young Pea-crops, they should be of the Hog-sort, and that are to stand till they are full ripe. It was the sixth of *May* 1742, when our Pea-crop was fit to receive the weaned Lambs; but in some very warm, rich, dry Soils, Lambs were put in on the twenty-fourth Day of *April*.

*Feeding and fattening Ewes and Lambs among Beans, &c.*—This Piece of Husbandry is performed more in Vales, than in *Chelturne* Countries; because they generally sow far greater Quantities of Horse-beans in the former than in the latter; which give the Farmers an Opportunity to feed their Ewes and Lambs among their Beans, from a very short Growth to Blossoming-time: And, in some favourable, warm, wet Springs, they'll feed and fat on eating the Curlock-weed, the young Thistle, the Poppy, the wild Mustard, the Chickweed, &c. and Grass, notwithstanding they are folded every Night; for, in most Parts of Vale-Lands, their Commons have so rich and fertile a Grass Turf, as to fat their Beasts surprisingly fast. Thus, with what their Ewes and Lambs find to eat between their large Crops of Beans, and on the fine hearty Grass of their Commons, both Sheep and Lambs oftentimes become fat enough, and are sold to the Butcher. It was the fifteenth Day of *May* 1744, before the *Ailsbury* Vale-Farmers suffered their Flocks of Sheep and Lambs to go into their Bean open Fields, to feed on the Weeds that grew amongst them; for their Horse-beans were not above three or four Inches high at this Day, by reason of this backward, cold Spring-season.

*Feeding and fattening Ewes and Lambs in Clover and Trefoil, &c.* In this Month, Clover, Trefoil, and Ray-grass, are in their greatest Heart; and as their  
their

their Stalks are large and very succulent, they yield abundance of rich Juice to suckling Ewes, that creates great Quantities of Milk in their Bags, which feeds and fats Lambs with the greatest Expedition; and was it not for the dangerous hoving Quality that attends Clover-grass in this Month, it would be the most profitable Sort of all artificial Grasses. On this account, the suckling Ewe escapes better than the Ram and Wether; for these never have so soon as they; yet I can't say they are free from this Danger; because, if due Care is not taken at first to give them their Belly-full of natural Grass, just before they are turned into the Clover-grass, it may likely become fatal to them. Now, to prevent this Misfortune, our most judicious Farmers sow Trefoil amongst their Clover; and some add Ray-grass, which, in a very great Degree, secures the Sheep and Lambs from hoving: But where Trefoil grows in an untire Crop, the Ewes and Lambs feed in more Safety, and fat at a great rate; because this Grass yields a very pleasant Juice, that produces an excellent Milk, and a great deal of it; insomuch that both Ewes and Lambs will fat here faster than in any other artificial Grass, and become very sweet Meat, provided they are put into the Field of Trefoil, while it is in its young Growth; for when this Grass is old, its Stalks and yellow Blossoms get rankish, and tincture the Milk of the Ewe, and the Flesh of the Lamb, with a little bitterish Taste. This delicate Grass-seed I sow every Year in its black Hull, and not in naked Seed; for, in this Condition, it will keep sound longest, either in or out of the Ground: Therefore those who think fit to send to me for this Sort of Seed, shall have it sent them in the Hull, and of the last Year's Growth.

*Why Trefoil-seed is best sent in its Hull to distant Parts.*—Trefoil-seed may be sent to great Distances in a pure sound Condition, while it is in its black Coat or Hull, without the Danger of heating and spoiling; because, in its Hull, it lies very hollow; inasmuch that we commonly sow two Bushels of it in its Hull on one Acre of Ground; when, if we sow the Seed naked, we sow twelve Pounds on one Acre. Thus a Five-bushel Sack of Trefoil-seed, in its Hull, will be about equal to thirty or forty Pounds Weight of naked Seed: Which plainly shews the great Disproportion of the Seed's lying in a Sack or Box, in its naked and hully Condition: Therefore, whoever has the naked Seed sent them to a great Distance, is in Danger, by its close lying, of having it heated and spoiled. And how much it concerns Persons to get a right Sort of Grass-seed, very much appears by St. Foyn-seed; which after one Year's Growth (though kept in its Hull) seldom grows; but there are several other good Properties belonging to the Trefoil-seed kept, and then sown, in its black Hull; on which I have formerly written.

*Of the Number of Ewes and Lambs, and the Time an Acre of Clover or Trefoil will fat the Lambs in.*

—This every Farmer ought well to consider and know, before he turns in his Ewes and Lambs to graze and fat; for on a proper Management of these Grasses, and that of the Ewes and Lambs, very much depends a great deal of his Interest. If he overstocks the Grass, he does himself a Damage; for these should not be eat too close down for the first time; if it is, and a dry Season succeeds, it will greatly check its Growth: But if it is then fed down about half-way, there will be a sufficient Shade left for lodging the Dews, and for recovering this first Bite in a little time. Here then lies great Part of a Farmer's Profit; if he shifts

shifts his Ewes and Lambs out of one Field into another, or hurdles out a Piece of Grass in the same Field, so that the Couples may enjoy a fresh Bite in due time, one Acre of Clover or Trefoil-grass may feed six Ewes and Lambs, and fat the Lambs off in about six Weeks time; whereas, if this Number were to be kept on one Acre of Clover till it is eat up bare, it would backen their Fattening, and cause the Farmer to lose the Benefit of most Part of his Grass. Again, there is also this Difference attending this sort of Management; one Acre of these Grasses will fat six sucking Lambs, if they are shifted in due time, as well as it would four sucking Lambs, if they are fed on no other Grass. As to what Mr. *Workidge* mentions, relating to Weaning Lambs, in order to put their Dams Milk to another Use, is, I suppose, meant for making Cheese with the same; which they do in some Parts of *Wales*, where they stand or sit behind the Sheep, to milk them. But this is practised in no Place in *England*, as I know of: For in this Part of *Great Britain*, Ewes Milk is put to no other Use than to suckle House or Grass-Lambs; which not only brings in the profitable Penny to the Farmer, but likewise affords the Nation in general a pleasant Opportunity of enjoying their delicate Flesh at a cheap rate in this Month, when it is in its greatest Plenty.

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## CHAP. X.

### *Of Gelding Grass-Lambs.*

**H**OW Grass-Lambs have been gelt in this month, and the Consequences thereof.—In my former Works, I have written on this Article, how this is performed by drawing out the Stones with the  
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Teeth of a Man. But I shall here give another particular Account of gelding Lambs; *viz.* as to the Time of Gelding, it varies according to a Person's Conveniency and Fancy: For, first, some Farmers geld their Lambs as soon as the Ewe has done licking it, believing it to be the safest Way; because the Creature suffers the least Pain while the Strings of its Stones are smallest and tenderest, and capable of Separation on a little pulling with the Teeth. Secondly, others refuse to geld them so soon; alleging, when Lambs are just weaned, it commonly happens to be very cold, frosty, snowy, or wet Weather, in the short Days, and long Nights; which exposes these young Beasts to the Severity of such Weather, that oftentimes kills many of them ungelt, much more when they are, as being less able to bear it: Therefore, they stay till they are a Week old, which many think the best Age, of all others, to geld Lambs at for Safety. Thirdly, others again refuse to geld them till *Easter*, let it fall sooner or later; because the Spring is by this time a little advanced, and a Picking of Grass is now generally to be had in mild Weather, both on Commons and in Fields; which being an additional Feed to the Ewes Milk, it is the more Security against the Lambs stunting or dying by the Operation; for Gelding, at any time, brings the Lambs under an Hazard of their Lives, at least a Checking of their Growth. Fourthly, others again will not geld these Lambs till *May*; because then there is full Meat in the Field, and are, at this time of Year, grown almost to a Sheep's Bigness: But when this is the Case, the Castration must be performed by the common Gelder with his Clasp-irons, and by searing the Cord, at the Price of one Penny each Lamb. This Piece of Husbandry I have known done on the tenth Day of *May*. But I have this to add, by way  
of

of Consequence, that, for my own Part, I refuse this Sort of Gelding by the common Cutter or Gelder, because of the many fatal Effects that have succeeded such Operation. A Neighbour of mine has had his Lambs gelded two or three Years together after this manner; but is now weary of it, because he has lost several Lambs by being gelded, late in *April* or *May*, with Claspings-irons; whence, notwithstanding the Gelder's Application of a blue Powder and green Ointment to the seared Cod at the same time, several of his Lambs have died in the Years 1742 and 1743: So that, in this Case, neither a full Bite of Grass, nor the Warmness of the Weather, could save them. Wherefore, I chuse gelding Lambs, by first cutting off the Tip of the Cod, and drawing out their Stones with a Man's Teeth, at one, two, three, or four Weeks old; And then I immediately put in a little Hog's Lard or fresh Butter, or only some Salt, into the open Cod, and it is done with; besides cutting, at the same time, a little Bit of the Lamb's Tail off; But then this Precaution should be strictly observed, that such Sort of Drawing-gelding ought to be performed before the Buds of the White-thorn appear full, lest the Lambs eat them, and get spotted on their Cods: Then, indeed, their Condition is too hazardous for them to be gelt by Teeth-drawing, as being more safe for the Creatures Lives to keep them on till *April*, or this Month of *May*, and geld them by Claspings-irons. However, let the Gelding be done at any time, the Lambs in very cold, or in very wet Weather, should be housed for the first Night or two afterwards.



## C H A P. XI.

*Of Weeding in May.*

A farther Account of Weeds and Weeding, than what I have heretofore published.

**H**OW a Wheat-crop was weeded, while in its green Ear.—I have formerly written much on weeding Corn; but, for all that, I doubt not but there are many Secrets behind, that are not yet come to my Knowledge. The latter End of this Month they were weeding Wheat Knee-high, when Part of it was shooting out its green Ear. A Person, going through one of their Fields in *Nottinghamshire*, asked the Weeders why they trod down the Wheat while it was so high; but they made a Pish at it, and said, it would rise again by-and-by. But, by-the-by, these were a sort of wretched Husbandmen, that defer weeding their Wheat till it is on the Shoot; for although it has a Chance of rising again, if fair Weather succeed, yet the Bruising of the green Stalks by the Weeders Feet checks the free Ascent of the Sap, and greatly damages the Crop; which is what most of these Peasant-People have no Notion of: Besides, if rainy Weather, for some time, should happen to follow such Weeding, the trod-down Stalks would, many of them, be apt to remain to the last in such a couchant Condition; and then there would be a fine deal spoiled indeed! Therefore, I think, the Farmer, whose chiefest Interest depends on his Wheat-crop, should be Master of more Wit and Conduct, and prevent such great Prejudice, that must certainly happen by Weeding, when Wheat is in its green Ear,

*How*

*How a Wheat and Barley-crop was spoiled by Weeds, &c.*—On the Third of July 1743. I had some Sheep strayed from the rest of my Flock on *Gaddeſden Common*; upon which I ſent my Servant in Search of them, who travelled ſome Miles before he found them. In his Way, he told me, he met with a diſmal Sight, even that of a very poor Wheat and Barley-crop, that grew on a dry huſky Chalk and Gravel. Here it was, that great Quantities of thoſe pernicious Weeds grew, called Clap-weed and Poppy-weed: The firſt bears a white Bloſſom, and branches out in great Numbers of Stalks, draws a great deal of the Ground's Goodneſs to maintain its Growth, and takes up much Room, to the killing of the Corn that grows near it: The red Poppy likewise is as bad a Weed as this, becauſe it has the ſame fatal Effects; ſo that both theſe Weeds (notwithſtanding the Uſe of the common Weed Hand-hook, employed in May, to check their Growth) have ſuch deep Poſſeſſion of the Ground, as to become rampant by this time, and do a great deal of Miſchief both to Wheat and Barley-crops, in theſe ſort of dry Soils; inſomuch that, what with the Effects of a long dry Spring-time (for it had not rained for ſeveral Months, till the Beginning of June), and the furious Growth of theſe two Weeds, that got the Dominion of the Corn, the Farmer-Owner had hardly any good Grain this Year, except Peas; and theſe were, almoſt every where, a full Crop; while in Vales, and in moſt Parts of *Cheſterne Countries*, there was the beſt of Wheat and Barley: for theſe were ſo plenty, that Wheat ſold, till May-day, for leſs than three Shillings a Buſhel, and Barley for leſs than two. Now, here there are no leſs than three ſeveral great Farmers, that live almoſt together, moſt of whoſe Land is of a chalky and gravelly Nature, and ſubject, in very dry

dry Summers, to this Misfortune ; and the more, as the Weeds get old and more numerous : And this they do, because their common Two-wheel Plough is not capable of extirpating all the Roots of Weeds ; which, with the Hand Weeding-hook, is all they have to trust to, for destroying their Weeds. This leads me to observe, how wanting these three Farmers are to their own Interest, who, though they are justly accounted some of the best of Farmers in the Country they live in, for managing after the old *Virgilian* Way of Farming ; yet so short are they of the main Point, as to be very great Losers, in very dry Summers, by their Wheat and Barley-crops being thus damaged by Weeds ; which may be most easily prevented by the Use of the Three-wheel Drill-plough, Horse-break, and *Dutch* Hoe ; by the Drill-plough sowing the Wheat and Barley-seed in Drills at a Foot asunder, and hoed once or twice afterwards by the dispatching *Dutch* hollow Hoe, which excellently well performs a great deal of Weeding-work in one Day by a Man's Hand ; or by sowing Wheat or Barley out of the Hopper of this most valuable Plough, without any Hoeing at all for the rest of the Year, by a particular Method I informed all those of, that I furnish this Drill-plough, Horse-break, and *Dutch* Hoe to ; which are Instruments that destroy all Sorts of Weeds in the cheapest manner possible ; and, by this means, will so nourish a Wheat or Barley-crop, in the driest Seasons, in chalky, gravelly, and sandy loamy Grounds, that there is no great Hazard of the Farmer's having full Crops of Wheat and Barley in them. By this very Case, I take the Opportunity of touching upon the obstinate Ignorance of some Farmers, and the great Advantage they miss of, in not adhering to and practising those Improvements that might be most plainly made appear to the Capacity of

of a mean reasonable Rustick. The obstinate Ignorance of some, if not most Farmers, is so well known to most Gentlemen Landlords, that to them there needs no Information how Antiquity and Custom govern their Actions, and prevent their embracing any new Improvement in Husbandry; though it would certainly be to their very great Advantage, even to the Saving of some from Breaking and Ruin: Witness the present Case, which plainly shews, that if a poor Tenant had nothing but his Corn-crop to trust to for paying his Rent, in so cheap a Year as this was, 1743. when Wheat, as I said, sold for two Shillings and Six-pence a Bushel at *Hemstead* great Market, and Barley for less than two Shillings, how must he be able to remain in his Farm, and have no more than five Bushels of Wheat upon each Acre, as my Man verily believed was the outside Quantity that grew in an Eight-acre chalky Field of this Farmer's, notwithstanding he plowed and dressed his Ground in Perfection before he sowed his Wheat-seed? For I know this Farmer is never wanting in performing these two main Branches, which occasions him in wet Years to have plentiful Corn-crops; but, in very dry ones, the Manure, or Dressing, is apt to do more Harm than Good, pecially if Soot, or other of the powder'd Sorts, are laid on the Wheat late in the Spring-time; for then it helps to burn up rather than assist the Corn-crop; which Damage, added to that of the rampant Weeds, whose fertile Growth, in such dry Soils and Seasons, being little or nothing impeded by the Corn-crop, have the greater Power to rally and keep down the Thriving of the Wheat; whereas, if such a Farmer was but to break his Pea-crop, that is, if he would only sow his Peas in Drills, and draw the new-improved Horse-break through the Interspaces one or twice in a Summer, this

This most excellent Instrument (if it is made in right Order, with the late additional earthen Iron) would destroy the most potent Weed that grows, and, by this very means, prevent Wheat and Barley-crops from being afterwards-damnified by their Arch-Enemy the Weeds.

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## C H A P. XII.

*Of the Polype Water-animal, and other Insects; with Accounts relating to their wonderful Properties.*

*A*N Advertisement printed in the Northampton Mercury in November 1742.——“ From the  
 “ Paris A-la-main, November 22. 1742. The third  
 “ Memorial that Monsieur *De Reaumur* read the  
 “ 13th Instant, at the Royal Academy of Sciences,  
 “ relates to a very curious Discovery that has been  
 “ made at the *Hague*, by Mr. *Tremblay*. It is an  
 “ aquatick Insect, called a Polype, which has  
 “ this Peculiarity in it, that, when it is cut into  
 “ several Parts, each of those Parts produces of  
 “ itself, in the Space of twenty-four Hours, what  
 “ it wants to form a complete Body; so that this  
 “ Insect being cut transversely in three Parts, the  
 “ Part belonging to the Head will produce a Tail,  
 “ and the Tail a Head, and the Middle a Head  
 “ and Tail. Some of these Insects have even been  
 “ cut transversely into forty Parts, which each  
 “ produced what was wanting in it to make a perfect Insect; so that of one Polype, perhaps,  
 “ forty were made. If they be cut through the  
 “ Middle, from Head to Tail, each will produce  
 “ another. On this Occasion, Monsieur *de Reaumur* made several learned and judicious Observations;

“ vations; particularly, that as it is an Axiom,  
 “ that Nature is not singular in its Productions,  
 “ so there must be other Insects susceptible of the  
 “ like wonderful Productions. He reports, that,  
 “ by Experiments already made by him, he has  
 “ discover’d certain Earth-worms that have the  
 “ same Properties; but that Nature operates in  
 “ them in a much longer Space of Time.”

*Of the great Importance of knowing the Nature of Water-insects.* — Although this Knowledge highly concerns Gentlemen, Farmers, and others who live in the Country, and keep Cattle; yet it has been so little taken notice of by rustic Authors, that, I presume, few Persons have regarded it to any Purpose: And therefore I thought a more ample Discourse of this Nature so perfectly necessary to employ my Pen in, that I could not dispense with an Omission of it, considering the infinite Damage that Beasts are liable to, which have no other Water to drink throughout the hottest and driest Summer than that of stagnating Ponds and Ditches; or when, through a customary Mistake, Persons prefer such nasty unwholsome Water to that of a River or Well-fort; when it is in their Power, at the same time, to chuse the latter, and refuse the former. But, before I come to treat of the dangerous Qualities of such Pond and Ditch-waters, and of the Animals and Insects that breed and live therein, I shall first give an Account of the Nature of the Polype Water-animal, whose late Discovery, by the celebrated Mr. *Trembley* at the *Hague*, by Mr. *Reaumur* at *Paris*, and by *Martin Folkes*, Esquire, President of the Royal Society, and Mr. *Baker*, at *London*, has surprised all that hear and read of it; because it proves to be of a Nature contrary to the common Course of Nature, and the received Opinions of animal Life, to a Degree that People, as the learned Mr. *Baker* ob-

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serves, look on the Natural History of it as ridiculous Whims, and absurd Impossibilities: Yet the plain and repeated Experiments that have been visibly made of the Polype, before many curious Gentlemen, Virtuofos of the Age, have sufficiently evinced the Reality of what Mr. *Baker* has made Trials of; and wrote the same in his Treatise, intituled, *An Attempt towards a Natural History of the Polype*; printed in the Year 1743: Which leads me to make some Observations of the same.

*A particular Account of the Nature of the Polype.*

— Mr. *Baker*, in this his Treatise, remarks, that that curious Observer of Nature, Mr. *Leeuwenhoeck* first took notice of this Water-animal, and the uncommon Way its young ones are produced, in the Year 1703. But the amazing Properties of it were more fully found out by the said Mr. *Trembley* in 1739. who discovered it to have a greedy voracious Appetite, and a singular Dexterity in catching, mastering, and devouring Insects and Worms, though much larger and stronger than itself; since which, by Mr. *Baker's* cutting Polypes into Parts, several Hundreds have been produced in *London* between *March* and *August*, by three that were sent over to *London*. But, besides these three *Dutch* Polypes, there have been six *English* ones found since in a Pond at *Hackney*, and seven or eight smaller greenish ones in *Essex*. Of these Polypes there are several Species, that render themselves ten or twelve times longer at one time than another; for this, Worm-like, can contract or extend its Body at Pleasure, by fastening the End of its Tail to the Bottom or Side of any Vessel it is kept in, or to the Stalk or Root of Duck or other Weeds in Ponds or Ditches; from whence it generally stretches out its Body downwards; and sometimes crawls, by the Assistance of six, eight, ten, twelve, or fourteen Horns, or white Arms, no thicker

thicker than the Threads of a Cobweb, that incircle its Head; with which he feels for, and takes his Prey; for the Virtuofos, with the nicest Microscopes, cannot find it has any Eyes; but some with so short a Body, when extended, as hardly to exceed a Quarter of an Inch in Length; and so little, when fully at Length, that it may be compared to the Thickness of a Hog's Bristle; as these were, that were taken in *Essex*. Others, that were first sent over by Mr. *Trembley*, had Bodies an Inch and an half long, when extended; tho', when contracted, not exceeding one Tenth of an Inch: And yet the *Hackney* and *Essex* ones were smaller at first taking than these. But those last sent over by that Gentlemen in *July* with Tails, though their Bodies were no longer nor larger than those of the other Species, yet had Arms that surprisngly extended to several Inches. The Number of Foreign Polypes Arms are commonly from eight to fourteen; the *English* ones from four to ten. The first sort have been seen to extend their Arms nine or ten Inches deep in a Glass Jar of Water; and the last three or four Inches; which they row and wave about in Ponds and Ditches for making a circular Motion to form a Current, that sometimes brings along with it many small Insects, which they catch and prey on. Some Polypes have been seen to shorten their extended Bodies, not grosser in that Condition than the smallest Straw, to the Thickness of a Goose-quill, and to the Shortness of a Quarter of an Inch, in one Moment's time. But such large Polypes are said to be very rare; for that they are seldom seen above an Inch long in their longest State; and then, as I said, no bigger than a Hog's Bristle. These small fresh-water Animals have been brought over to *England* in Phials of Water stoppt with Corks, and afterwards



kept in open round Glasses of soft Water a long time, by feeding them with Worms, and taking the Polypes out with a Quill-scoop every second Day, for renewing the Water, and cleaning the Glasses ; otherwise the Excrement that they void, the gross Parts upwards, and the fine Parts downwards, would form a slimy Sediment, and may become fatal to them. Here they will live, and feed three times a Day, or without Food for some Weeks or Months ; and may be seen in their many different Postures, how they fix their Tail to the Side of the Glass, and extend their Bodies to seize a Worm, which can hardly escape, if the Polype does but touch him ; for then it is immediately grasped with his long Arms ; for he is Master of such an exquisite Sense of Feeling, that if a Worm touches the least outward Part of his Arms, he seizes it with as much Fury as a Cat does a Mouse, and soon entangles it to its Destruction ; for tho' the Worm is far larger, and seemingly stronger, than the Polype, yet, as *Mr. Baker* observes, he is quickly killed and presently eaten by him ; which Sight affords a fine Entertainment, to behold the Dexterity of the Polype in mastering its Prey, and the Art with which it evades and overcomes the greater Strength and Agility of the Worm. These Polypes may be found in many Ponds and Ditches in *England*: And, for finding them, Stones, Sticks, Stalks, and Roots of Water-plants, or any other Thing lying below the Top of the Water, if tenderly taken out, and put into large Glasses of Water, and there be any Polypes among them, they may be seen hanging by their Tails, Leech-like, in a gentle Motion of their Bodies ; for as these are little or no Swimmers, they are seldom loose in the Water, and therefore are not easily found by taking up clear Water in a Pail or Bowl ; yet they

they sometimes crawl to, and hang by their Arms on the Top of the Water with their Tails downward ; and sometimes lie at Length on the Top of the Water, in order, as it is supposed, to catch some Prey, particularly in Ditches, for taking some Sort of Flies and Insects. The Polypes, says this ingenious Author, produce their Young different from the common Way of all other Creatures yet known ; for, having no Distinction of Sex, every one of them is prolific, as much when apart as when in Company. The young ones come out of their Parents Side, not bigger than a Pin's Point ; and in a Day or two put out Arms ; and in time separate from it : Four or five at a time drop from the old one's Body, and then others succeed ; and, what is very strange, the young ones frequently breed others, and these others again, to the Re-production of a third or fourth Generation, before the first parts from its original Parent ; and thus are found to be of such an increasing Nature, that, as this Gentleman observes, a thousand may be bred from one Polype in a Summer. But the most wonderful Part of all is, if the Head Part of a Polype is cut off cross-ways, it will seize a Worm as soon as offered it ; and it has swallowed as much as the Piece of Body can contain ; and in one Hour's time play'd its Arms, and in a few Days produced a Tail. A Polype cut across in three Pieces with a Pair of Scizzars, as it lay in a little Water on a Sheet of Paper, and immediately put into a Glass of Water : In eight Days time they have recovered themselves, and been three distinct complete Polypes, though the middle Part, at cutting off, was no bigger than a midling Pin's Head. And, what is likewise extraordinary wonderful of this Creature, Mr. *Baker* gives an Account of a large Polype, that was turned inside

inside out, by his first distending its Body with a larger Worm, given it for the Purpose, than it could swallow ; which with the Head-part of a Pin (the Point whereof was stuck in a small Stick) he pushed the Tail inwards, that caused all the Worm to come out of the Polype's Mouth ; and yet the Polype lived. He says, Mr. Trembley has turned many, which yet lived, thrived, and produced many young ones in that inverted State, There are Hundreds of other curious Matters relating to this small Water-animal, with numerous Cuts, contained in Mr. Baker's Four-shillings bound Book ; which, he says, he wrote to vindicate the Truth of them, as having proved divers of them by visible Experiments ; and to display before Mankind a new Instance of the amazing Power of the Creator. But, he says, there are some Persons, who, though real Facts are incontestable Arguments, sometimes disbelieve even what they see. Others, says he, there are, who, though convinced of Facts, remain dissatisfied ; unless all the Steps whereby those Facts are brought about, can be mechanically described, and a Reason assigned for them. Hence it comes to pass, says he, that some, who have been Eye-witnesses of the Cutting and Re-production of these Creatures, and have no Doubt at all remaining, as to the Reality of what has been related concerning them, are yet frequently inquiring how their wonderful Faculties can be accounted for, and wherefore they are bestowed on this Animal. To which Mr. Baker answers — No otherwise, in my Opinion, than by resolving them into the Will and Pleasure of their Almighty Creator ; which I likewise believe the most reasonable Way of accounting for the Qualities and Properties of most other Things around us. When a Twig is cut off, and by planting in the Earth becomes

becomes a Tree of the Kind whereof it was a Part ; Can we account for its becoming so, any thing better than we can for the like Effect in a Polype ? A Cutting of a Vine, Curran, Elder, Arbel, Poplar, Willow, or Alder ? Will not their Boughs, or Pieces of them, grow, if stuck in a proper Earth at a proper Season ? &c.

*Of the poisonous Nature of the Polype, and other Water-insects; and of the Waters they breed and live in.* — As there are many Sorts of small Water-animals and Insects, that breed and constantly live in Ponds and Ditches, whose several Natures (it is supposed) vary according to their different Species ; it would be very satisfactory, and I believe very serviceable to Thousands, if their good and bad Properties could be discovered, that Persons may thereby be the more induced to avoid the worser Sort of them ; for at present, few, very few of the Farmers in particular, will entertain hardly any Notion of the Prejudices that may happen to their Cattle by drinking black, foul, and muddy Waters, nor of the many Sorts of Insects they abound with, which their Horses, Cows, Swine, &c. very probably swallow at their watering ; till they are made sensible of their mischievous Natures by the most glaring Proofs ; for, till then, they will not be dispossessed of their antient tenacious Opinion, that such Water is preferable to all others for this Use : Because, say they, this foul Water is of a warmish and nourishing Nature, by means of the unctuous and sulphureous Qualities of the Dung and Urine that are washed into it by the frequent Fall of Rains, that thus deliver the Cattle from the Danger of Gripes and Belly-ach, which clearer Water (the Spring Sort especially) may subject them to ; and likewise, because such Water lies nearest the Farm Yard,

Yard, that consequently makes it less troublesome to come at, than a clearer Sort in a Pond, situated at a greater Distance ; without considering the worse Part of such stagnating foul Water, and that of the Insects they are furnished with. In order therefore to make my Endeavours tend towards removing this grand, and sometimes fatal Mistake, I shall here give a short Account of what this nice Virtuoso Mr. *Baker* remarks, relating to the venomous Nature of this little Water-animal, the Polype ; who, at Page 32. has these Words. —

“ We shall never, perhaps, be able to discover certainly, by ocular Demonstration, whether the Mouth of this Creature is really armed with Teeth ; but we may conjecture it so to be, from the Ease wherewith it bites or breaks the Skin of a Worm, in order to suck the Blood and Juices ; as, if the Worm be large, it is constantly found to do, till the Body is reduced to a Size capable of being swallowed. There is, likewise, a further Probability of its having such offensive Weapons, from the violent and painful Agonies a Worm expresses the Moment it is taken Hold on by the Polype’s Snout, and from the sudden Death that follows ; which, considering the Nature of a Worm, and the Difficulty of killing it by pricking it, or even cutting it in Pieces, would almost incline one to imagine, there must be something poisonous in the Bite ; and that the Polype, as well as the Viper, does not only bite, but even inject a Venom into the Wound it gives, for the more speedy Destruction of its Prey.” Which Kind of Death to the Worm is somewhat analogous to that of a Toad and a Bee ; when a Spider kills the former leisurely, if he cannot enjoy his Plantane Antidote ; and the latter suddenly : For, as soon as a large Humble-bee is intangled in a Web,

Web, I have seen a Spider directly march towards him; and, seemingly, by putting his Mouth to the Bee's Mouth, presently ensued its Death; which, I suppose, was occasioned by the Spider's injecting a Poison into the Bee: For, as Mr. *Baker* observes, we have no way of coming at the invisible Causes of Things, but by arguing from their visible Effects. But, to return to the Water-insects: On the 20th Day of *February* 1743-4. I sent my Servant to my Neighbours Ponds for Water, to discover what Insects I could in it; and from a little Pond, where there was little Water, I perceived in a Glass of it, many live Creatures, that appeared to the natural Eye as big as very large Lice, and mostly of their Shape; with very white Bodies; and a bright red List along their Backs: These swam by the Help of four short Horns or Arms, commonly in an ascending Manner; except when they had struck out their Arms on each Side their Head, they descended a little, till they recovered by another shooting out of them, and then ascended again; which Motion they seemed to continue without much Fatigue. In a larger Pond on the same Day, I perceived none of these white Lice-insects; but three other Sorts. One appeared, by my Microscope; to be as big as a Thetch; with a divided Tail in two flat Parts, which helped it to jet about in a Spoonful of Water with great Agility, and of a black Colour, but I saw no Legs or Arms that it had; and in the same Spoonful of Water a much smaller Insect presented itself, swimming about like a Pin's Head in Bigness. In another... Quantity... from this last Pond, I was very much surprised at the Sight of a slender Insect, whose natural Length, as it swam in a Phial of Water, seemed one Inch; had an Head and Tail like an Adder; with a Body of a white, shining, trans-

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parent Colour, the Bigness of a small Straw, and composed of about ten Joints without any Legs, which helped it to twine about like a Worm or Adder, and would contract and extend itself like them. This Insect had a Pair of Eyes visible to the natural Eye of a Beholder without a Glass, appearing like two small black Specks; which were the more apparent, as his Head and Body looked of a whitish Colour: And I observed, that there was a little black Bunch on his Back near his Head, and another near his Tail. This Water-adder Insect (for so I call it) I took out of the Water, and laid it on a Piece of white Paper; where, in less than fifteen Minutes, it expired; putting out, as it had done before, its black Tongue, like a Hair; and another small Thing at its Tail, like the Sting of a Wasp. This Animal I kept alive in the Phial ten Days, by shifting the Water once in three or four, without giving it any Food. In the same Phial of Water another smaller Animal appeared, of a perfect brown Colour; in Length something above a Quarter of an Inch, with a Body about the Thickness of a small Straw, and a taper Tail, that had three little Hairs, or Forks, at its End, which it spread in Swimming, with a quick playing Motion; as it did its whole Body up and down in the Water by the Help of many Legs, and two Hairs or Arms at the Front of its Head. This Animal being thus furnished with Arms, Tails, and Feet, to a Body composed, like a Caterpillar, of many Joints, gives me a Suspicion it is of the amphibious Kind, because it is well provided for either Swimming or Crawling. On the 27th Day of *February* 1743. I shewed it to some Persons; who, when they beheld it in the Phial of Water with the naked Eye, declared themselves frightened and amazed at its Sight; as not

suspecting.

suspecting there could be any such Animals bred and living in the same Water they daily used for their Tea, for boiling their Meat, for Brewing, and for watering their Cattle. Red-worms, Frogspawn, Tadpoles, Water-lice, and many other living *Animalcula*, are obvious to the View of those who are at the Pains to strain their Pond and Ditch-waters through a Sieve; which most of the Inhabitants at *Gaddefden* are forced to do in Defence of our Health, in dry, hot Summers, and, indeed, all the Year besides, when our Ponds and Ditches are low in Water, as they were in 1743. But the former Sort of Animals being not so commonly found in the Water as these latter Sort are, they are overlooked by most People, and taken little or no Notice of. However, there are others, who are so much their own Friends, as to carry their Suspicion of the poisonous Nature of these Water-insects so far, as to use none of the Water for their Tea, or Flesh, before they strain it through a Cloth; as not trusting to the Detention of them by a Sieve, fearing its woven Hairs lie at too great a Distance to prevent the minutest of them making their Escape into the strained Water; which, notwithstanding all our Care and Pains to get clear and fine, must, in course, in some Degree, partake of the filthy Nature of the Mud and Sediments of the Pond, besides being tinged with the dead and living Insects, and with their Spawn or Eggs, so as to render the Water unwholesome, if it is not first boiled, and carefully scummed; and this the more, as the Water becomes less in Quantity; for then undoubtedly it is most disturbed by these Insects, that lie in and upon the muddy Part of it. But, in my next Supplement for *June*, I intend to give a further Account of this important Affair, because it is a Matter of very high Consequence,



as it concerns the Health of Men and Beasts ; and therein make known a Remedy for this great Evil, by the Application of a certain Ingredient that will infallibly kill all Sorts of Water-animals, and yet not damage the Water.

*An Account of the Death of a Colt, supposed to be occasioned by constantly drinking at a Pond of foul Water, that abounded with infinite Numbers of Water-animals and Insects.*—Now, although it cannot be certainly inferred from what I have before remarked, that the Polype, nor other Water-animals and Insects are of such a poisonous Nature, as to cause the Death of Beasts which are constantly watered at the Ponds and Ditches where they breed and harbour ; yet, in my humble Opinion, they afford us a strong Suspicion of it : And why common Instances of their Mischief are not more seen, may be for the following Reasons : First, where Pond or Ditch-waters are, by contiguous, declining, clean Situations, presently increased by Showers of Rain : Or, where such Waters are in large Quantities, and much exposed to the purifying Virtues of the Air : Or, where they are fed by Springs : Or, are often emptied : Then, I say, this Damage is much prevented. But, where foul or blackish-coloured Pond or Ditch-waters are reduced by long Draughts, and their Water-animals and Insects are thereby comprised in a very narrow Compass, they are consequently more exposed to be swallowed by Cattle (the larger Sort especially) that drink no other Water ; for then Multitudes of them, by means of their narrow Confinement, are necessarily convey'd or suck'd into the Bodies of Horses, Cows, and Swine, at their Watering or Drinking, for want of Room to avoid it, with some filthy Slime, that must accompany these Water-animals or Insects, and living *Animalcula* ; because they lie in or upon the

the Mud, as well as float and swim up and down in the Water. Which brings me to my intended Purpose of giving some Account of the Death of a Farmer's Colt — A Colt, that at two Years old cost Mr. ———, who lives about a Mile distant from my House, ten Pounds at *Dunstable* Fair in *Bedfordshire*; and seemed to promise well for making an Horse worth twenty Pounds a Year or two hence: But this Hope was prevented by the Colt's sickening and dying on the Day after *Christmas* Day 1743. that happened in this Manner: It was taken ill about the tenth Day of *December*, for which it was blooded, and Drinks given it by two several Farriers; which occasioned him to look livelier at some times than at others; but he drooped all the while, and went off his Meat by degrees; so that he lingered about a Fortnight, or more, between Hope and Despair, and latterly seemed stupefied, as if under a lethargic Distemper; would now-and-then reel a little; and, at last, ended his Life in a sort of shriveling, or gathering-up Posture of his Body. When opened, the Man that did it told me, nothing could be discerned extraordinary of this Colt's Death; which employed the Thoughts of several, how it came to pass; but none were able to make a conclusive Conjecture. For my Part, as I am a near Neighbour and Acquaintance of this Farmer's, I gave my Opinion (though no Farrier), that it was occasioned by watering this Colt daily at a Pond situated at the Bottom of the Farm Yard, which lay on a sharp Descent, where Part of the Strength of the Dung and Piss of the Farmer's six Horses, his Cows, his Swine, his Sheep, and the Drain of his Dwelling and Out-houses besides, washed and run into it, that kept it all the Year under a greenish or black Colour, and in a very stagnating,

nating, and sometimes stinking Condition ; and this more now than has been for many Years past ; because the Springs were hardly ever known lower, by the last three Years dry Weather, than at this Time ; which has caused even the Well-waters in many Places to be so low, that little could be got ; and, therefore, some that used to water their Cattle from what they drew out of Wells, were now obliged to water them at corrupted Ponds and Ditches, so stored with Animals and Insects, that they seemed as thick as Oatmeal in Pottage. But this Farmer's Case was otherwise ; he did it by Choice, though he had an excellent chalky Well-water at Command in a low Situation just by the same Yard, and accordingly constantly obliged the Colt to drink of this foul Water to the last, which at this time was computed to be two Feet deep, and the Mud under it as much ; so that this Pond, in course, was become a poisonous Nursery for the Breed and Harbour of Water-animals, and *Animalcula* of the worse Sort, that were necessarily, as I said, in some degree, sucked in by the Cattle at their Drinking : And although these Water-animals and *Animalcula* may be killed by the digestive Faculty and Heat of the Creature's Stomach, yet, who knows what Quantity of venomous Matter may be thereby conveyed into the Blood of the Beast, or what Damage it may do afterwards ? For, if I mistake not, most Poisons are of an acid Quality ; and, if Water-insects are of the same Nature, they may possibly cause a Coagulation of the Blood of an Horse that drinks them into his Body ; and That, a Stoppage of the Blood's Circulation ; which may bring on a lethargic Quality, and kill the Creature : For, undoubtedly, if those Insects are of a venomous Nature (which it behoves one nicely to examine), they must necessarily be of great

great Prejudice to the Creatures that take them into their Bodies in common Draughts (notwithstanding it is manifest, that the Heat of the Stomach presently kills them); because they must more or less contaminate the Mass of Blood, by their poisonous Quality affecting and loading the Juices destined for Nourishment. But then we should take care to ground our Hypothesis upon a true Basis; else all our Argumentation thereupon must be Fallacy. Therefore I could heartily wish, that the learned Virtuosos of the Age, who are Masters of the best of Microscopes, and other Conveniencies, would strenuously employ their Curiosity in searching more into the Nature of these Water-animals and Insects; and endeavour to find out, whether they may communicate a poisonous Quality to the Blood of those Beasts, that may suck and drink them into their Bodies; for I am sure the Water is such, when it is in a stagnating, stinking Condition, as I am going to make further Observations of.

*A further Account of the ill Effects of stagnating Ponds and Ditch-waters, and the Insects they abound with.* — Presently after the Death of this Farmer's Colt, two of his other Horses were taken ill, that had been daily watered at this stagnating Pond-water; but it had not that fatal Effect on them as it had on the Colt; for these two, with suitable Applications, recovered; perhaps, because these two Horses being arrived to a greater Age than the Colt, their Bodies were more capable of resisting the poisonous Quality of the Water and its Insects. However, by these repeated Examples, the Farmer at last (as he owned to me) became of Opinion, that this Damage had its Rise intirely from the Horse's drinking at this nasty Pond; and therefore ever since has watered all his Horses with Water that is daily drawn

drawn out of his Well : A Remedy better late than never ; and which hardly any thing else but the Death and Sickness of his Horses could have persuaded him to make use of, and to overcome that old grand riveted Notion, that there can be no Harm in that Water, where Cattle have daily drank for many Years together without Prejudice. Therefore it is, that Custom carries it over Reason, and induces Thousands to believe their Cattle are always in Safety, in respect of their drinking at Ponds, let the Water be in what Condition it will, so there be enough of it : But as this Year 1744. is (if I mistake not) a fourth successive dry Year, the Case is altered ; because the Mildness of their Seasons occasioned not only great Scarcity of Water in most Places, but thereby stagnated it, and qualified it the more to breed pernicious Insects, that still multiplied, and enlarged their Growth ; till most Ponds and Ditches were stored with them to that Degree, as obliged the larger Sort of Beasts to swallow many of them at their Drinking. Hence it is, that it highly concerns all Persons who graze and keep Cattle, to be more than ordinary careful to provide themselves with a good Well, or large Ponds of Water, with such Aqueducts, as may quickly convey to them the wholesome refreshing Waters of Springs and Rains ; for small Ponds and Ditches, especially of standing Waters, are very liable to be full of Insects in Summer-time, and, indeed, all the Year besides in mild Seasons ; and then they are certainly unwholsome in the time they are mostly wanted. It is recorded, that the Drought of the Summer 1714. was so great, that most of the Ponds of standing Water were near dried up, and Cattle in such Places wanted Water ; or, where the Water was over-heated, the Cows, in particular about *London*, caught a Distemper (I

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suppose the Murrain) that was equal to the Plague, which caused many thousand Cattle to die that Year, by communicating the Distemper to one another : But it was observable, that where the Beasts had the Benefit of clear running Waters, they preserved their Health : On which Account, those Cattle that lived farthest from *London*, fared best ; because near that Metropolis there is little running Water, besides that of the *Thames*, tho' it is a Part where most is wanted, to wash away the Filth that is produced from the Dung, and Stale of their Cows in particular ; for here great Numbers of them are confined in so little Ground, that in hot dry Seasons they are forced, in some measure, to drink Part of their own Dung and Piss, out of the green and black Waters of their Ponds and Ditches, notwithstanding their being loaded with Insects ; which brought their Cows under that contagious Sickness as obliged their Owners to burn some, and bury others in Pits, to stop the Distemper ; and this Winter and Spring 1743. there were many meazled Hogs, and others jogged under their Throats : The first is a Disease in Swine, compared to the Small-pox in the human Body ; and so detested when known, that such Flesh is prohibited being brought to Market ; yet some have been so hardy to do so, and had it burnt. The second Disease is not so bad as the first ; for this seems to be the Favour of Nature in throwing off that Corruption which is bred from the Creature's Blood by a gathered Humour, and which, when ripe, we discharge by cutting, or running a red-hot Iron through the Bunch or Jog ; and then the Hog gets sound, but is not fit to be killed till the Evacuation is over. However, the Cause of these Maladies are imputed by some

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to the stagnating Waters, and their Insects, that the Swine drink in abundance in many Places : And this with good Reason ; for I and others had our Store or Yard Swine, that go about at their Will, jogged in *December, January, and February, &c.* when our fattening Hogs, kept in Sties, stood perfectly sound ; because the first drank nothing but the foul black Water of our Farm-yards, and contiguous Ditches, while the latter had clean Water given them from our choicest Ponds every Day.

*The bad Situation of a Farmer's Pond in the Chelturne Country of Hertfordshire, and the ill Consequences that have attended it. —* In this Example, as well as in Thousands of others, may be perceived the Ignorance of our Ancestors : What can be more indiscreet, than making a Pond in the Middle of a Farm-yard, where considerable Numbers of various Kinds of Beasts and tame Fowls are kept, great Part of the Year, to feed on Hay, Straw, and other Meat, and where they discharge their Dungs and Urines ? Yet there wants no other Proof of such a silly Contrivance, than to see some of these Ponds, Ditches, and Drains, at this Day, in several Farm-yards ; one of which Ponds I shall here take particular Notice of, as follows ; viz. At *Icebrook Hay-Farm*, situated about two Miles distant from *Water-End*, there is a Pond in the very Middle of the Farm-yard, incircled with all the Dung that is made in the Stable, Hogsty, and elsewhere ; by which the Wash of the Dung runs into this Pond, and thickens it to that degree, that many have wondered how the Cattle could drink such grouty, black, stinking Water, full of Lice, Worms, Bugs, and other Insects : However, this Pond remains here, at this Day, notwithstanding the Tenant had two of his Horses died in half

a Year's time, of the Yellows and Strangullion, without suspecting, that the original Cause was from the Foulness of this stagnated Water, and the Insects bred in the same; which, by Custom, the Beasts were so fond of, that they would refuse a clear River or Spring-water, when they passed through it, for this: And so others, that are used to drink at Springs or Rivers, would refuse them for any Sort of Pond-waters.

*The bad Situation of a Farmer's Pond and Ditch in the Vale of Alesbury, and the ill Consequences attending the same.*—Here the Farmer rented one hundred and fifty Pounds a Year, and kept eight Horses, and sixteen Cows, besides Swine, and tame Fowls, whose Dungs and Urines, for good Part of the Year, were made in and about this Yard, by the Horses in the Stable, by the Cows in the Cow-houses and Yard, and by his Swine abroad, and in the Sties; from all which were washed great Quantities of black Water, that remained in a Pond in the Yard; and when that was so full as to run over, the Water ran into a contiguous Pond, and large Ditch. Here it was that most Part of the Farmer's Horses had crack'd or greasy Heels, which the black Water undoubtedly very much contributed towards breeding, by its sulphureous and hot Quality, which, added to that of the Beans where-with the Horses were constantly fed, so heated their Bodies, as to produce, in a great measure, this Malady; and, I am afraid, another besides; for Worms and Botts have been found, in large Quantities, in the Body of more than one of this Farmer's Horses, that have died and been opened. Here I have seen Swine that have been kept to fat in a Sty, forced to stand up to their Bellies in Water, to feed out of a Trough, and drink the pasty Sort that oused into the Sty from Dunghils;



yet I cannot say the Hogs suffered on this Account; because, I suppose, the Whey and Skim-milk they drank besides, became their Preservative. Nor has it cost me a little to alter some Receptacles and Aqueducts, which were, in former Days, made on Purpose in and about my Yard, that were so ill contrived, as to let the Virtue of the Dung and Urines of my Horses, Cows, &c. run off to a very great Loss; a Loss so common, that there is hardly one Farm-yard in our Parish of *Little Gaddesden*, but what lets the Dung-hil-water run into the Highway, and be, for the most part, lost, notwithstanding such black Water is the very Quintessence of the Dung; for when this is thoroughly washed, there remains but an insipid Virtue behind, that often helps to deceive the Ground it is laid on, and the Farmer its Owner: But if there is enough of such Dunghil-water for the Cattle to drink, then some think it not lost, while it thus serves for Home-use. But the before-mentioned Farmer is, since the Death of his Colt, become wiser than he was, and has prevailed with his Landlord to be at the Charge of making him a new and large Pond, in a much more cleanlier and safer Situation, than that is at the Bottom of his Farm-yard, which lies always open for Cattle to drink at when they please. But my Invention answers a better End; for I have made a long Ditch that lies contiguous to my Kitchen-garden, capable to receive and hold the black Water that drains out of my Yard, which Cattle can't come at to drink; and yet serves me for several profitable Uses, that I intend to give an Account of more particularly hereafter.

N. B. The before-mentioned Farmer, that lost his Colt, has since had a large new Pond made, about fifty Poles distant from his Farm-yard,

yard; in a gravelly Bottom, free of all Communication of the Water that may run or drain from it.

*How an Eel poisoned a Dog.* ——— A curious Person, a Searcher into the Secrets of Nature, made the following Experiment upon an Eel and a Dog: He got an Eel, of a pretty large Size, and nailed it up to a Place alive, where he let it hang a considerable time, till it voided a Liquor somewhat like Rheum, which dropped on a Piece of Bread laid on purpose to catch it: And, when the Eel died, they took away the Bread, and gave it to an hungry Dog, which, greedily eating it, did, in a little time after, appear poisoned, swelled, and died. This Experiment having been thus tried, the Truth of it may be depended on, to the Surprise, undoubtedly, of many, that this Water-animal (which is esteemed, in many Places, a dainty nourishing Food, when baked in Pies, or roasted or broiled, &c.) should be capable of emitting a venomous Liquor: But so it is, that if the Eel had not a poisonous Quality in him, he could not discharge one. But, how far a lingering agonizing Death may turn a good Quality into a bad one, I leave to the prying Philosophers to account for; who may likewise inform their Judgments a little farther, from what Mr. Bradley has observed in his general Treatise of Husbandry and Gardening, where he has these Words: “ It is  
“ likewise improper to have any Eels in a Carp-  
“ pond, whether the Pond be for Breeding or  
“ Feeding; for they are great Devourers, especially of the Spawn of Fish; unless indeed a  
“ Pond be overpowered with Frogs and Toads,  
“ and Fish do not breed in it; then the Eels will  
“ help to destroy those Vermin. From some late  
“ Observations, I am apt to believe, that the  
“ Eel

“ Eel is viviparous ; that is, it brings its Young  
 “ alive into the Water, contrary to other Pond-  
 “ fish : For about the *Buoy* in the *Nore*, the Fisher-  
 “ men take an Eel-like Fish about *Cbristmas*, that  
 “ has then its Belly full of live Young-ones, almost  
 “ as small as Hairs ; and about that time of the  
 “ Year the River and Pond Eels are all bedded in  
 “ the Mud ; or folded over one another, which I  
 “ suppose may be their way of generating : And I  
 “ wish about that time some of them were ex-  
 “ amined ; for it is yet uncertain how they breed. If  
 “ the Water-Toad, or Frog, should in that Pond  
 “ chuse their Habitation, the Jack will be sure to  
 “ fill his Belly ; but his Flesh is never the worse for  
 “ that : The Fish that can only keep him Company  
 “ without Danger, are Eels, Flounders, and Perch :  
 “ The two first are as voracious as himself, and  
 “ have a constant Guard over themselves ; for  
 “ their Abode is always in the Mud, leaving only  
 “ an Hole open at the Mouth ; at which they suck  
 “ in their Prey, as it passes by.”

*How a Water-Eff poisoned a Cat.*—The fol-  
 lowing Account was sent me by a Correspondent,  
 whose Veracity I have reason to depend on, and  
 therefore believe it to be genuine. His Words are  
 these :—“ *London, February 20. 1743-4.* Sir,  
 “ An ingenious Gentleman, whose Conversation  
 “ I lately had the Pleasure of, was pleased to com-  
 “ municate the following Account to me, which  
 “ he had from the Gentleman himself ; and  
 “ which I believe will be of some Use to you,  
 “ since, as you informed me, you intended to  
 “ write on the Nature of Water-insects, &c.  
 “ ———It is this : An eminent Physician  
 “ at *Salisbury*, who was a great Virtuoso, tried  
 “ the following Experiment, to discover whether  
 “ or not there was any poisonous Quality in the  
 “ Water-Eff ; viz. He put one into about a Quart  
 “ of

“ of clear Water from the Pump in a Bason, and  
 “ supply’d him now-and-then with a sort of weedy,  
 “ slimy Matter, or Scum, that accumulates, or  
 “ gathers, in a large Quantity, like a Cloud,  
 “ at the Bottoms of Ponds; on which (as well as  
 “ Fish) he had observed them to feed. This he  
 “ lived on for near a Fortnight (but did not re-  
 “ new the Water all this time), till he then ob-  
 “ serv’d the Creature (supposed for want of Wa-  
 “ ter, and Room enough to play himself in) to  
 “ throw out of his Mouth two or three Kitchen  
 “ Spoonfuls of frothy, slimy Matter, somewhat  
 “ resembling the Frog’s Spawn; and then expir’d.  
 “ The Physician thereupon was curious enough  
 “ to taste this upon his Tongue’s End, and found  
 “ it of a very pungent saline Quality, and made  
 “ all the Water brackish. Then he put some of  
 “ the Water for a Cat to lap, which soon after it  
 “ had done, it began to swell very much, and  
 “ was almost at the Point of Death; but at length  
 “ it recovered.”

*Observations on the Death of the Eel and Water-Eff.*—The Water-Eff, as well as the Frog, &c. are esteemed by most People harmless Creatures; nay, they are of Opinion, they do the Pond-water they live in a Service, by feeding partly on the Scum and Slime thereof, which helps to preserve such Water in a purified State; the Truth of which I am apt to believe, as the better Part of these amphibious Animals; but the worse Part of them I never knew till of late: One Instance of which is here undeniably proved in the first of these; whereby is plainly shewn the bad Effect of a tedious panic Death of the Water-Eff; and which, however harmless in any other Condition (for the Boys frequently catch them for Pastime, and never suffer any Damage by handling them), yet,

yet, by this way of the Eff's dying, it certainly evacuated a poisonous, or venom'd Liquor, that it expired in, as fully appeared by the sick swell'd Body of the Cat. From whence I would make this Observation, that where Eels, or Effs, live in considerable Numbers in a small Quantity of Water; such Water (it is my humble Opinion) ought to be mistrusted, and the Use of it avoided, both for House Occasions, and for watering Cattle at, lest these Animals, by some Accident they are liable to suffer in the Water, die a lingering panic Death, and thereby communicate a poisonous Quality to such Water, which may perhaps infect the Bodies of Men and Beasts, and bring them under Sickness, if not Death. But for a further Account of the Nature of bad Waters, and pernicious Water-animals, I intend, in my next Monthly Supplement for *June*, to give another surprising Detail, by inserting in it the Copy of a Letter sent me from an ingenious Correspondent, who made very curious Observations on the latter, and by my publishing several serviceable accidental Cases of the former. I shall conclude this Chapter with the Copy of the following Letter; viz.

*“ The poisonous Nature of the Land-Eff; of the  
 “ Row of a Barbel, and of Coperas Oysters.——*  
 “ Sir, As I am very much obliged to you for  
 “ many Favours, I take all Opportunities to ac-  
 “ knowlege the same; and therefore hope the  
 “ following Account will not be unacceptable;  
 “ since it may furnish you with some Items you  
 “ never heard of before: And if it should con-  
 “ tribute in any useful Degree to your great Un-  
 “ dertaking, of furnishing the World with ser-  
 “ viceable Novelties, I shall have my desired Sa-  
 “ tisfaction.——A Friend of mine says; that the  
 “ Powder of a dried Land-Eff, or Swift, as they  
 “ are

“ are called in *Essex*, is a most deadly Poison :  
 “ And that the Row of a Barbel (a fresh-water  
 “ Fish, such as we eat at *Reading*) is of a poisonous  
 “ Quality, insomuch as to cause the Nails to  
 “ drop off. — There is a Sort of Oysters of  
 “ late only brought to Town, called *Porto Bello*,  
 “ which have a Coperas-like Taste, and are of  
 “ a poisonous Nature (a young Woman’s Lip  
 “ having swell’d soon after eating them, told me  
 “ by the Person who sold them her) ; insomuch  
 “ that the Lord Mayor lately ordered a large  
 “ Boatful to depart the Gate, or all to be thrown  
 “ overboard.”

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### C H A P. XIII.

#### *Of Fishing for Trout, &c.*

**O**F the Nature of Trout. — The Trout deserves  
 a more particular Account to be given of it,  
 than of any other fresh-water River-fish whatso-  
 ever, because it is the most profitable Sort we  
 have in our inland Counties. It is said to come  
 in and go out of Season with the Stag and Buck,  
 and spawns about *October* and *November* ; which  
 is the more admirable, for that most other Fish  
 spawn in warm Weather, when the Sun by its  
 Heat has cherished the Earth and Water, making  
 them fit for Generation. The Spawn of the  
 Trout has been observed to produce about fifty ;  
 of which there are several Sorts, as the Fordage  
 Trout, the Armerly Trout, and the Bull Trout.  
 That called the Char-fish, which is bred only  
 in *Westmorland* and *Cumberland*, is thought to be  
 a Sort of Trout ; and so excellent, when potted,

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as to be sold from one to three Guineas a Pot. But one of these came to me much cheaper, as a Present from a worthy Gentleman, whose Correspondence I was favoured with. Some say the red and yellow Trouts are best, and that the Female has the Preference for its Goodness, having a less Head, and deeper Body, than the Male: By their large Back you may know, that they are in Season, with the like Note for all other Fish. They are all the Winter sick, lean and unwholesome, and often found to be lousy: These Troutlice are a small Worm with a big Head, sticking close to the Fish's Sides, and sucking Moisture from him that gave them Being; neither is he freed from them till the Spring, or Beginning of Summer; at which time his Strength increases: Then he deserts the deep still Waters, and betakes himself to gravelly Grounds, against which he ceases not rubbing himself till he is cleansed from that Louiness: From that Instant he delights to be in sharp Streams, and such as are swift, running toward the South, where he will lie in wait for Minnows and *May Flies*; at the latter End of which Month he is in his Prime, being fattest and best. They are usually caught with Worm, Minnow, and Fly, either natural or artificial. There are several Sorts of Worms, which are Baits proper for the Angler; as the Earth-worm, Dunghil-worm, the Maggot, or Gentle: But for Trout, the Lob-worm and Brandling are accounted the best, or Squirrel-tail, having a red Head streaked down the Back, and a broad Tail. The Brandling is commonly found in an old Dunghil, Cow-dung, Hogs-dung, or Tanner's-bark. But here take notice, that with whatever Sort of Worms you fish, they are better for keeping; which may be in an earthen Pot with Moss, which must be

changed once in three or four Days in the Summer, and in twice as long time in the Winter.

As this Month of *May* is the prime Month of the whole Year for Angling, &c. especially for that best of River-fish, Trout, I shall give some Account of the same.

*To take Fish by Angling.*—Get some brown Flies, put them into a little Mould, and put both into a Quart white Bottle, that has a very wide Mouth; put some Grass on the Top, and secure it so well with a Cork, that no Water get in: To this fasten a Piece of Packthread, and sink it: Then bait your Hook with an Ant-fly; let it down as near as you can over the Bottle, and you'll have good Sport, as we frequently find true in our *Hertsfordshire* gravelly Rivers.

*A second Way.*—Daub the Inside of a little Box with some Vermilion finely ground, and put into it two or three or more Gentles, or Maggots bred in the Carcase of a dead Cat (which are always the liveliest Sort); and by their rolling about in the Box for two Minutes before you make use of them, they will be of a beautiful red Colour: Fasten one of these to your Hook, only through the Skin of the Back (which will not kill it, as the common way through the Head or Body does), and you need not fear good Success, if you mind to be quick enough to draw as soon as you perceive they bite; otherwise you are likely to lose your Bait and Time.

*A third Way.*—Take Oil of Ivy-berries, or the Sap obtain'd in this Month of *May*, by piercing the Body of the Ivy; putting in a Quill, and a Phial fasten'd to it, will, by now-and-then smearing the Box you keep your Baits in, with a Drop or two of it, make the Fish bite a great deal sooner.



*The Breed and Nature of the Caddis Fly.* — All Flies are bred from a Caddis, that is to say, from a Worm. The Caddis, or Trout Fly, is hatch'd in the Water, after lying in its Nest all or Part of the Winter. In *May* it arrives to that Maturity, as to become bulky enough for the Water to cause its Ascension from the Bottom of the River: And when it is got to the Surface of the Water, I have observed with a great deal of Pleasure how this large Fly betakes itself to its Wings, and leaves its Shell or Nest behind it floating on the River. This Fly has three short Hairs or Arms at its Head, and three longer ones at its Tail; are all the Month of *May* rising at times out of the Water, very fat, with a blackish Body, and a whitish Tail; in which Condition they are catch'd for baiting Angling-hooks, and are certainly the best natural Baits of all others for taking Trouts: They never feed after their first Flight, but grow leaner, and leaner; insomuch that in a few Days time they'll crack or pop on squeezing, and generally return and die on the Water they came from. This wonderful Fly serves for Part of the Trout's Subsistence in this Month, which are so voracious after this their dainty Prey, that commonly they greedily bite at it on the Hook. At *Winchester* I saw a Man angling with the Caddis Fly, just by one of the Bridge Arches, where the Water had a great Fall, and was very rough: Yet he seem'd to catch more Fish here than any other I saw fishing in the smoother Part of this River, because a Trout swims, for the most part, against the Stream.

*Of catching Trout by the Hyde.* — In my former Work I have given some Account of the Hyde for catching Trout, as being a very great Conveniency for this Purpose; because by this Invention a Person may command a Dish of Fish without

without waiting their being taken by the Angle, or by throwing a Net into a River. This Hyde is made with Joists and Boards, Part whereof compose two large Flap-doors, that are made to open when the Fish is to be taken out after being caught, by letting two or more Boards fall down in a Notch or Frame on each Side of the Doors, that generally are so large as to extend cross a narrow River, which incloses all the Trout that are hid in the Hyde; for here these Fish lie to shelter themselves in great Security against the Sun, Air, and Poachers, as may be seen in some of the *Hertfordshire* and other Rivers.

*How to take Trout, Eels, and other Fish; in the Night-time.* ——— To do this, make a little Boat, or get a wooden Bowl, about the Bigness of the largest Punch-bowl, in Readiness: When this is done, provide yourself also with a Glass Flask broken at Bottom, which you are to fix in Clay over a lighted Candle; then tye a Leather Pipe about the Neck of the Flask, that should not exceed four Feet in Length: This fasten on one Side of the Boat or Bowl, and on the other Side fasten baited Hooks: By this the Fish will gather about the Flask, and bite at the Baits. But this Sort of Fishing must be confin'd to a Water that is not above three, or three and an half Foot deep at most, that the Leather Pipe may have Liberty to stand almost erect, with a sufficient Part of it above Water: And if the River has a sandy or gravelly Bottom, you may stand at the Side of a narrow River, and have a Chance to see Eels play, and get an Opportunity of striking some with Eel-spears.

*N. B.* The Clay that is to be made use of on this Account should be mixed with Salt, for keeping Water the better out of the Flask.

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*A second Way.*—Get a white glass Phial, and put therein divers coloured Silks, stop it close, and let it lie on a gravelly or sandy Bottom ; for these Colours will amuse the Fish, and cause them to gather and stay about the Phial in great Numbers, ready to bite at your Baits, or to be caught by Nets.

*A third Way*—is said may be done thus : Take Spirit of Mars or Iron, and Spirit of Castor or Asper, half an Ounce of each : Of this Mixture take a Tea-spoonful, and put among it an Handful of great Bran ; work and roll it, and throw little Bits of it into a Pond or River : It will shine like Diamonds in the Water, and cause the Fish to come to, and eat them ; and tho' it won't poison them, it will make them drunk, so that they may be easily taken.

*A fourth Way.*—If you would do this with Ground-bait ; in the first place, you must have a neat taper Rod, light before, with a tender Hazle-top : You may angle with a single Hair of five Lengths, the one tied to the other, for the Bottom of the Line, and a Line of three-hair'd Links for the upper Part ; and so, if he has room enough, you may take the largest Trout in the River. He who angles with a Line made with three-hair'd Links at the Bottom, and more at the Top, may take Trouts ; but he who angles with a single Hair, shall take five to his one ; for this Fish is very quick-sighted : Therefore the Angler must keep out of Sight, whether it be by Day or Night ; and he must angle with the Point of his Rod down the Stream. He must begin to angle in *March* with Ground-baits all Day long ; but if it prove clear and bright, he must take the Morning and Evening, or else his Labour will be in vain. He that angles with Ground-bait, must fit his Tackle, and begin

begin at the Upper-end of the Stream, carrying his Line with an upright Hand, feeling his Plumbet running on the Ground about ten Inches from the Hook, plumbing his Line according to the Swift-ness of the Stream that he angles in ; for one Plumbet will not serve all Streams. For his Bait, let him take the red knotted Worm, which is very good, where Brandlings are not to be had. The Minnow (or, as some call it, the Penk) is a singular Bait for a Trout ; for he will come as boldly at it, as a Mastiff Dog at a Bear. It will be advantageous to him to use a Line of three Silks, and three Hairs twisted for the uppermost Part of the Line, and two Silks and two Hairs twisted for the Bottom, next the Hook, with a Swivel near the Middle of his Line, with an indifferent large Hook. If you fish for a Trout, by Hand, on the Ground, take a Lob or Garden-worm, and put your Hook into it, a little above the Middle, and out again a little below the same ; then draw your Worm a little above the Arming of your Hook, making your first Entrance at the Tail, that the Point of the Hook may come out at the Head. When you fish with the Minnow, chuse the whitest and middle-sized, those being the best ; and so place him on your Hook, that he may turn round, when he is drawn against the Stream. The best Way of baiting with the Minnow is thus : Put your Hook in at his Mouth, and out at his Gills, drawing it through about three Inches ; then put the Hook again into his Mouth, and let the Point and Beard come out at his Tail ; then tie the Hook and his Tail about with a fine white Thread, and let the Body of the Minnow be almost strait on the Hook : This done, try against the Stream, whether it will turn, which it cannot do too fast : For want of a Minnow, a small Loach, or Stickle-back,

back, will serve. The Angler must angle with the Point of his Rod, down the Stream, drawing the Minnow up the Stream by little and little, near the Top of the Water: The Trout, seeing the Bait, will come most fiercely at it; but the Angler must not then presently strike. This is a true Way, without Lead; for many times they will forsake the Lead, and come to the Minnow.

*How a Gentleman, reduced by Sickneſs to a very weak and declining, Condition recovered, and got Fat by the Uſe of Tench Broth.*—— In order for my Reader's entertaining the better Notion of this excellent Fiſh, I ſhall, in the firſt place, give a particular Account of it, as deſcribed by an ingenious Pen:——“ Tench,” ſays he, “ is a delicate  
 “ freſh-water Fiſh, that has but ſmall Scales,  
 “ yet very large and ſmooth Fins; he has a red  
 “ Circle about his Eyes, and a little Barb hanging  
 “ at each Corner of the Mouth. This Fiſh  
 “ delights more among Weeds in Ponds, than in  
 “ clear Rivers, and coveys to feed in very foul  
 “ Water; yet his Fleſh is nourishing and pleaſant:  
 “ His Slime is ſaid to be of a very healing Quality  
 “ to wounded Fiſh, and, upon that account,  
 “ has obtained the Title of the Fiſhes Phyſician;  
 “ nay, the devouring Pike is ſaid to be ſo ſenſible  
 “ of his Virtue, that he will not hurt a Tench,  
 “ though he will ſeize upon any Fiſh, of his Size,  
 “ that comes in his Way: And when the Pike is  
 “ ſick, or hurt, he applies to the Tench, and  
 “ finds Cure, or Relief, by rubbing himſelf againſt  
 “ his Body.” At *Gaddesden* I have theſe Fiſh in  
 my Ditch and Pond; for they will live even in  
 Horſe-ponds, where other Fiſh will not, becauſe  
 of the Foulneſs of the black Water; and yet this  
 ſeems to have no ill Effect on the Fleſh of this delicate  
 Fiſh, which is both pleaſant and nourishing,  
 beyond

beyond all other fresh-water Fish; and which will the better appear from the following Account: A Gentleman, being reduced, by Sickness, to a very low Condition, was advised, by his Doctor, to go down to his Seat near *Huntingdon*, and sup Tench Broth; which he accordingly did; and, finding the great Benefit of it, continued taking it so long, that he always returned to *London* fat.

*The Receipt how to make Tench Broth.*—Take a Tench that weighs one Pound; cut him in three Pieces, and put them into a Jug, well corked, to as much Water as, when all is stewed, there will be a Pint, or a little more: Let the Jug boil five Hours in a Pot, or Kettle, of Water. In the mean time, let a Quarter of a Pound of Sago be boiled in Water, in a Pot by itself. When the Tench Broth is boiled enough, mix the Liquor of one with the other, and drink it as Soup or Broth. This Receipt was given me by the late Reverend Mr. *Colemore*, Vicar of *Edlesborough* in *Bucks*, who assured me of the Gentleman's Case aforesaid.

The Copy of a Letter received from an unknown Hand.

*London, May 31. 1744.*

Mr. Ellis,

I Have been a constant Buyer of all your Works, as they have appeared; and was surprised, that there was no Account, in your last Monthly Book, of the Bustard, as you promised, and was advertised: Should be glad you would let us know how that Bird, and the Pheasant, may be brought up, with little Trouble and Charge, in great Towns, in a Room, &c. as you hinted: Hope to have a full Account of Park and Deer; several curious Receipts farther in Country Affairs, and in relation to a Country Housewife's Matters: How to de-

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stroy, or take, all manner of Vermin infesting the Countryman ; something in respect of finding, increasing, and preserving Game ; the Laying-out a Country-Seat ; what ought to appertain to it, to render it commodious and delightful, either for a Nobleman, or for a private Gentleman ; and divers other Things in the Rural Taste, which, it is apprehended by many of your Friends, you can write on ; and will be exceedingly taking.

I am, S I R,

*Your Friend, and Humble Servant.*

I don't live far from you ; so don't know but I may do myself the Pleasure of seeing you this Summer. Don't care how expeditious you are in publishing your Works.

In Answer to this, I can only say, as my Undertaking is great, it requires some Time to perform it in ; and that, for my Interest-sake, I will do it as fast as I can.

## C H A P. XIV.

### *Of Trees.*

**T**HE great Benefits of preserving the Shoots of Trees and Hedges from the Bite of Cattle, shewn by the Damage resulting from such Bite. —

Mr. Worlidge says ; “ Forbear cutting or cropping “ Trees you intend shall thrive, till October.” And he is very much in the right, of cautioning against the same ; because now the Sap seems to be

be in almost its full Action, by supplying every Arm, Bough, and Twig, with its thin Liqueur, at this Time so rarefied by the Warmness of the Weather, that it is delivered from that densified thick Consistence, and inactive State, it was in by the Coldness of Winter-weather ; which causes it to circulate in this Month, in Trees, Shrubs, and Herbs, and forward their Growth in new and vigorous Shoots ; upon which depends the Enlargement of Trees, Shrubs, and Plants, that are now in their infant Growth, and tenderest State : Wherefore our greatest Care is more required in this Month, than any other, to prevent all manner of Cattle biting or cropping any first young Shoots of Trees or Hedges ; because their Bite, at this Time of Year, is perfectly venomous : Which I prove thus : If the Shoot, or young Branch, of a Tree or Shrub, is bit by Horse, Cow, or Sheep, in this Month, the Sap, more or less, will surely issue out of the Part, as out of a Wound ; and, by the Shoot's losing all or Part of its Blood or Sap (which is the Life of it), it either dies, or becomes so weak, as to keep only in a languishing Condition all the same Year, and longer. But if it is a single Shoot, without any collateral ones, it is in the greater Danger of being intirely killed by such Bite or Crop ; for then the Sap of the whole Plant being mostly contained in such a single Shoot, it is here discharged at the Place so bitten, in Part, or in the Whole ; but if there is any other Shoot from the same Root, or Side-branch from the same Shoot, that has escaped a Bite, the Damage will not be so great ; because, though the bitten Shoot dies at the Wound, and about it ; yet the Sap, contained in the Side-shoot, remains not so much hurt, but may proceed in its Growth the same Summer, but not with the same Vigour, as if none of the Branches had been bit



or crop; for a Bite, even of one Branch, affects, in some degree, all the rest, be they ever so many, from one and the same Root; because the Loss of some Sap is Part of the Whole. This, I think, is enough to shew my Reader, how careful he ought to be in the Preservation of his Trees and Hedges, against the Bite of Horse, Cow, and Sheep, especially where these grow in inclosed Fields, because here they are of double Advantage to a Farmer; to those Hedges that are planted and grow in open Fields, for here they are planted more for the sake of the Wood, and Boundary-marks, than for Fences. But, for farther explaining this important Matter, I shall proceed as follows; *viz.*

*How a Farmer damaged a very profitable Hedge, for many Years afterwards, by carelessly suffering his Cattle to crop it in this Month.*——The Hedge I am here about mentioning, was first well planted with Variety of Sets, as Oak, Beech, Ash, Hazel, Sallow, and Thorn, on a good loamy Soil, and in the Home-Close, where it grew in a very vigorous flourishing Condition, even to that degree, as to give the Farmer an Opportunity, at every nine Years End, to cut and plash it; and then it yielded him so much Fagot-wood, as made the Ground it grew on pay as much as any other of the like Quantity, under Corn or Grass, besides proving a safe inclosed Fence against the Breaking-out of any Horse, Cow, or Sheep, and nourishing those several Timber and Fruit-trees that grew, at proper Distances, in the same Hedge. But so it was, that this Hedge, as I said, standing in the Home-Close, the indolent careless Farmer suffered his Cattle, Night and Day, to have free Access to it, and bite and crop it at their Pleasure; and this at an Age, before its Top-shoots had grown high enough to be out of the Reach of their Mouths; which so venomd and stunted its Growth,

Growth, that its wounded Parts caused the whole Plants to sicken and decline, instead of making a forward growing Progress; insomuch that this very Hedge, by some Repetitions of the same Damage, never recovered its former usual profitable Growth, for near twenty Years after; whereby the Tenant became not only his own Enemy, but likewise so to his Landlord; for by such his ill Husbandry, he lessened the Value of the Farm, either for Letting or Selling; because, when a Tenant, or Buyer, takes a View of a Farm for this Purpose, and sees its Hedges in such a dismal Condition, he is presently apt to believe the Land is worse than it really is; for, according to the Growth of the Wood, so he estimates the Goodness of the Ground; and thereby he is induced to offer a Price proportionable for the same. And though this Plea may be justly alleged, that the Hedges afforded so poor a Prospect, by reason the Tenant suffered his Cattle to crop and eat them in their infant sappy Growth; yet I have heard such a Plea made use of in vain to a Purchaser, unacquainted with Country Affairs, who could not be brought to believe such sorry Hedges were occasioned by any other Thing than the Poverty and Barrenness of the Soil.

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## C H A P. XV.

### *An Account of a new Attempt to feed Sheep among Pea-Crops.*

**I** CALL this a new Way, because such an Attempt was never known in these Parts, till very lately; and then it was first done about *Kensworth, Flamstead, and Market-street*, which are three Places lying in and near the great *Dunstable Road*,  
for

for feeding Ewes, with their Lambs, in Pea-fields, that were sown with Hog-peas, to stand for a ripe Crop. But another Incentive to this new Piece of Husbandry was, the Destruction of the wild Oats, which, in these Parts, grow in great Quantities, in their light, chalky, gravelly, and loamy Grounds; believing that these Animals, with their narrow Mouths, would bite and feed on them, before they would meddle with the Peas: Accordingly, the Sequel proved their Notion right; for the Ewes and Lambs being turned into a Field where the wild Oat was its proper Height, and in its sweetest sappy Condition, they fell upon eating them, in Refusal of the green Pea-stalks, and their Heads. In this Case, the Growth of the Peas, as well as that of the Weeds, is to be particularly regarded; for if the Ewes, and their Lambs, are turned into such a Field, while the Peas are very young, they would be apt to eat them, as well as the Weeds: Therefore they observe, not to turn these Creatures into a Field of Peas, till they are grown pretty high, as they commonly are about the latter End of this Month; and then they will feed amongst them till they are almost ready to bloom, and yet do the Pea little or no Damage, provided the Ewes, and their Lambs, are shifted and removed in due time; that is, when they have pretty well eat up the Weeds, they ought to be taken out of the same Field, and put into another, lest their Hunger oblige them to feed on the Pea-stalks, and do considerable Damage. But here is room, on this Account, for an Objection to this Practice; That the Ewes, with their Lambs, if they don't bite off the Pea-heads, they may, by their Tread, bruise the Pea-stalks, and hurt the Crop. This, I own, may happen in some degree; but, considering the Good the Sheep do in eating down the wild Oat, and other Weeds, and the Dung and

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Stale that they leave behind them, a much greater Advantage may be obtained this way, than by not feeding Sheep among Peas. But, for a farther Proof of this, I have to say, that, in this Month, some take in Road-sheep, to feed them thus among their Field-peas, at so much a Night a Score, as they travel in their Way to *Smithfield* Market in *London*, and find their Account in it; for Experience shews, that Sheep prefer the wild Oat, and other Weeds, to Pea-stalks; and, by this new Way, the Farmers, that follow this Practice, get more Money by their Peas than formerly, when they did not take this Method. However, I have this to add, that though several Farmers turn Sheep in, every Year, to feed in their Pea-fields; yet I must own it to be a bold Way of proceeding; even so bold, that some of their Neighbours, to my Knowledge, are afraid to do the like. Any Person, therefore, that doubts the Veracity of what I here write, may inform themselves of the same, at the aforesaid Places, where they may have full Satisfaction of the same.

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## C H A P. XVI.

### *Of Bustard Wild Fowl.*

**T**HIS most excellent, beautiful, large Fowl, justly deserves to be bred tame, tho' it cost, at first, a little extraordinary Expence, to get a Couple of them in their infant or chicken Growth, or for getting their Eggs; because their Bodies will pay their Owner more Profit than any other Fowl they can keep about their House. I know a Gentleman, that keeps some of these, declares, he would not take ten Pounds for one of them. I know another, that had several of them caught,

by Greyhounds, while so very young, that they could not make their Escape from the Dogs. But more of this in the following Accounts.

The Copy of a Letter from a Person, concerning the Taking and Improving that noble large *English* Wild Fowl the Bustard.

S I R,

I Received yours; and the Reason I did not answer it sooner, is, because I could not reconcile myself to the Inquiries; but since, from more substantial Assertions, I learn, that the safest Way of bringing up Bustards is, to catch them as early as possible after Hatching, which generally is in large Pieces of Rye, adjacent to Pieces of Barley: They feed and conceal themselves in Rye in the Day-time, and in Barley in the Night, or early in the Morning. They lay in Rye, and cover their Eggs as a Turkey does, and are much of the same Nature and Disposition, being very sullen and sulky. Those that are caught the soonest after hatched, are the easiest reconciled to a Familiarity with those that feed them; which is first done, by cramming them with Crumbs of Wheat-bread and Milk, and sometimes small Pieces of fresh Meat; which must be done, until they are capable of feeding themselves; which, with frequently being so fed, will become familiar, and feed out of *your* Hand: And, when so accomplished, they may be put into a Garden, where they will feed of Lettuces, and almost all Sorts of Grain. They are very scarcely hatched here, there having been but two caught in the Space of four Years; one of which was taken in a Piece of Barley, near to a large Parcel of Rye, the last Spring. I can learn by no Instance, of their being hatched otherwise than by their own Species; but, I imagine, if their Eggs can

can be found, before set upon, may certainly be brought forth by a Hen, as sometimes Turkeys are. Shepherds are the properest to procure you Eggs, or Young-ones; and if I can procure either for you, will endeavour to bring them to some Perfection. Your professed Friendship to my Son engages me to return you my hearty Thanks, and to inform you, that you may command any Service within the Power of,

S I R,

Burwell, Nov. 20.

1743.

Your obliged, humble Servant.

*Remarks on the foregoing Letter, concerning the Breed of Bustards.* — According to my Promise in my former Works, I here give a further Account of the Nature of this bulky delicate wild Fowl, which justly claims the Regard of our Nobility and Gentry in particular for its Propagation, and Breed in the same Way. First, Because this Bird yields a most charming pleasant white Flesh, and therefore fit for the Table of the greatest Lord and Lady. Secondly, For its large weighty Body, which, as I have heretofore observed, has weighed between twenty and thirty Pounds, Guts and Feathers included, that renders it a very profitable Family Fowl. Thirdly, For its beautiful Sight, which is not a little engaging to a curious Spectator. Next to the Cock Pheasant and the Heathcock, I am of Opinion the Cock Bustard, as a wild Fowl, shews itself in the finest Colours. Fourthly, For that the Nobility and Gentry are best able to defray the Charge of obtaining their Eggs or Young-ones, and afterwards to maintain them in a proper Place suitable to their Natures; for, without this Conveniency, it is to little Purpose to attempt their tame Breeding. In Parks, Grass-walks, O  
Villages,

Vistoes, &c. the Bustard may be made a most noble Inhabitant; for here he will not only grace the Place with his Presence, but get good Part of his Living by picking up Snails, Caterpillers, and other Insects; and feed on Lettuce, Rapes, Turneps, Beech and Oak-mast, parboil'd Flesh, and other Viands: And where they are kept among Beech-trees, in a plentiful Year of their Mast, this Bird, between *Michaelmas* and *Christmas*, will almost fat on this Food alone, as well as great Numbers of both wild and tame Turkeys do. Hence it is, that I cannot but observe the Neglect of great Numbers of our Gentry, who are Owners of Parks, or fine inclosed Fields, whose Soils are agreeable to the Growth of the excellent Beech-tree, and yet take no manner of Care to propagate it. If it is not for the sake of its Timber, yet for its ornamental Shade and Sight, for its Shelter to Deer, Pheasants, wild Turkeys, Bustards, &c. it ought to be most strenuously endeavoured after, as some few of the more judicious have done this last Winter and Spring 1743. by sending their Orders by Letters to me for some thousand of Beechen-sets, which I readily furnished, and sent them by Carriers to their appointed Places, in the freshest manner I could well do: But of this more hereafter; and now return to my present Subject: Which leads me to observe, that the breeding of Bustards tame, may be as well done as breeding Pheasants, *Guiney* Hens, wild Turkeys, Swans, Partridges, Heathcocks and Hens, Canary Birds, Lions, and other wild Creatures, tame, as is now done contrary to the Expectation of our Forefathers, who were ignorant of these great Improvements of Nature. But so it is, that both animate and inanimate Creatures have of late Years been brought over from distant Climates, and by Art (the Handmaid

of Nature) made to multiply their Species in *Britain*, where, till within these thirty or forty Years, past, they were perfect Strangers to our Northern Region; which plainly shews, that many other curious and profitable Things may, by Art and Diligence, be likewise brought to Perfection with us, which was never yet done. In which Number I here propose the Bustard wild Fowl to be bred tame, and its Species multiplied in as prolific a manner as any of the wild Turkeys are, which at this time are kept, and in their Breed annually increased, by many of our Nobility and Gentry. It is true, that the Bustard, as well as the Pheasant, &c. is naturally a wild Fowl: But don't we see wild Turkeys, Pheasants, *Guiney* Hens, &c. bred tame; and if afterwards let to fly at their Pleasure, will not forsake the Park or Place they are in, but remain in them, and the neighbouring Woods and Fields, ready for the Owner taking them at any time, if not disturbed by Poachers? By the same Rule, if the Eggs of Bustards are hatched under a tame Turkey or Dunghil Hen, I don't in the least doubt from what I have seen, but that they may be brought up in the same domestic Manner, to be so much in Love with their native Habitation, as to prefer it to all others for their constant future Residence. But to come to more Certainty, and avoid all Risque of the Bustard's flying away, and turning a wild Fowl again after being bred tame; it is only pinioning or cutting one Wing, and then the Danger of thus losing is over: Or otherwise; if a Person has a mind to enjoy this dainty huge Bird in its original State of Feathers without pinioning or cutting, it may be done as I have heretofore given an Account of; *viz.* by fixing Network about eight Feet high from the Ground, supported by Posts, and secured on all Sides by paling of Boards, that



no young nor old Bustard can possibly make its Escape, and yet have the Benefit of the open naked Air. Thus several Acres of Land may be employed in divers Partitions; allowing a Rood more or less to each square Partition, which may give an Owner the Opportunity of keeping in one Part white Peacocks, in a second wild Turkeys, in a third Bustards, in a fourth Pheasants, in a fifth *Guiney* Hens, in a sixth Partridges, in a seventh Water-fowls, and so others: And in the same Partitions of Ground, Turneps, Rapes, Green Wheat, and other Vegetables, may be sown, and made to become Part of their healthful Subsistence both in Summer and Winter; by which, with dry Corn, Pollard, Rasplings of Bread, and other Food, they may be nourished and fattened with great Expedition into the sweetest Flesh. By such Management in the open Air, where they have their Range at Pleasure, or confined in these Network Partitions, an Owner may at any time command one or more of these Bustards, where, by Custom, they may be brought to answer the Whistle, and come at an usual customary Time to their feeding, twice or thrice a Day, as it is now done in a certain Park, where Pheasants and Partridges come at the Whistle-call, as naturally as Dunghil Hens and their Chickens do at the Mouth-call of a Farmer's Maid-Servant; which if any Gentleman doubts the Truth of, and has a mind to be satisfied of the same as an Eye-witness, let him come to my House; and for paying me only for one Day's Riding with him, I will wait on him to the Place where these several Network Partitions are actually in Use for confining, breeding and keeping several of the Sorts of Fowls before-mentioned. What a delightful Conveniency then may a Gentleman thus enjoy, who by this means can command a noble Dish of wild Fowl of di-

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vers Sorts on any emergent Occasion, and in the quickest, freshest, and sweetest Manner possible, at any Season of the Year, at the cheapest Rate! Surely, did our *British* Gentry know the great Felicity that is to be enjoyed in an hundred Branches of a Country Life, they would no longer neglect the Means of obtaining it; but endeavour, with all their Might, to be Masters of them with all Expedition; that their Country Seats may become so completely furnished with such Beasts, Fishes, Fowls, Fruits, &c. as may render them capable to entertain and regale the greatest Potentate, at a small Charge, in the most elegant Manner, free of that excessive, ruinous Expence, of buying these Creatures at a second and worst Hand: These charming Improvements would certainly make Gentlemen more in Love with their rural Habitations, and less with a Town-Residence. But I must stop my Pen here, for employing it in a more particular and extensive Manner hereafter, when I have more Room to discuss this weighty Matter: And here farther observe, that if a Bustard is one of, if not the largest wild Fowl we have in *England*, in its natural State; it may be still improved in Bigness and Goodness of Flesh, by caponizing the Cock in its first Year of Growth. Now, to get the Bustard bred tame, you may see, by the Copy of my Correspondent's Letter, that the Bustard lays its Eggs in Rye, which, in the Month of *April*, is high enough to cover and conceal them from the Sight of Persons that may accidentally walk near them; for this Grain, generally growing in sandy, gravelly, or other dry Soils, forwards the Growth of the Rye, and preserves the Bustards Eggs from Chills of Water, notwithstanding these great Fowls make no Provision, by way of a Nest, to hatch their Eggs in; but lay them in a little hollow Place, made so by the Tread of Horses, or otherwise, like  
the

the Curlew, Lapwing, and some others, that run with some of their Shell on their Back : So that, whenever these Eggs are designed to be found, and brought away from the Field, to be set under a fine Turkey or Dunghil Hen, Shepherds are the properest Persons to be employed in quest of them, as they attend their Flocks in open, champagne Fields, in the Months of *April* and *May* ; and, when they have found them, to put them immediately up among Bran in Boxes, and send them away to the Part desired. And, though some Eggs may be fat on, and thereby rendered un-  
 useful ; yet, if a Person can get so many found ones, as to have a Cock and Hen Bustard hatched and bred up, they will more than reward him for a great Expence, as giving him hereby an Opportunity of increasing the Breed, to his very great Profit. But there is another Way to come by these Bustards ; and that is thus : In the Month of *May* there are young Bustards, which are easily run down in Rye or Barley ; for, about the Fore-part of this Month, these green Crops are seldom so high, as to hinder a Person's pursuing and taking them : And the sooner they are caught, the tamer they'll be, and with less Trouble be reduced to a Familiarity, as my Correspondent justly observes : Therefore I would here give Notice to Gentlemen, that may think fit to employ me to get Eggs of Bustards, or young Bustards, that they send me early Orders, to enable me to employ Persons, in different Parts, time enough for getting them in *April* and *May*. But, for an Example of Industry, I shall here insert the Copy of a most ingenious worthy Baronet's Letters to me ; who is such a Lover of rural Improvements, that he delights to be at his Country Seat, even in cold Seasons of the Year in Refusal of living, for the most part, in his magnificent new House at *London*.

Sir

Sir John ——— Baronet. The Copy of his  
Letter to this Author.

S I R,

*April 2d, 1744.*

**I** HAVE this Day finished your Month of *April*, as also all your other Works formerly; for which the World is greatly obliged to you. This is the first time I have ever heard of the Kerroon Cherry; and, as I love all Sorts of Improvements as much as any body can, I shall beg you to send me some, if you have any to spare: Twenty Trees will plant the Ground I can spare for them at present. I own, it is too late to plant; but I am so well supplied with Water, that I hope, if I have them soon, that they will succeed. I shall also desire one thousand of your Beech-sets, and a few Cuttings of your white Elder. I would not have the Cherry-trees old. If you can send me a few Trees of young Parsnep-apples and Orange-pears, I shall take it as a great Favour; who am, &c.

Sir John ——— Baronet. His second Letter concerning Improvements in Husbandry.

S I R,

*April 13th, 1744.*

**I** Received the Favour of yours this Morning, and am much obliged to you for the Trees. I shall plant them as you direct me; which is a Method I have followed this Season in planting several Fruit Standard-trees, which I plant round my Fields, near my House, as other People do Forest-trees. The Soil here is on a marly Clay, but over it very good Virgin Earth in most Parts. We have had a continual Rain these three Weeks, which will help my new Plantation, and save the Trouble of watering the Trees.

I shall

I shall be greatly obliged to you for your Receipt to keep off Slugs and Flies; and will pay you a Guinea willingly, as I am sure it will answer, as you affirm its Success.

I keep a Farm, of an hundred Acres, in my own Hands, half Arable, and half Meadow; and, according to my Success in Farming, shall increase, or decrease, my Quantity; and shall be greatly obliged to you for any Hints, that you shall give me, as to Ploughing.

As to the fifty wild Cherry-stocks, I shall be very glad of them; and shall prepare the Ground for them directly.

I lately read your Book for the Month of *May*; where, I find, you recommend a Pole-bull, because of the frequent Accidents that attend the others. I intirely agree with you, and intend to keep no other. I have hitherto kept a large Dairy of *Holderness* Cows, which are too large for me, though my Land is good: Besides, they eat an infinite Quantity of Hay in Winter, which don't answer, in my Opinion, except near *London*, where Grains may be had in Plenty for them. I now intend to try the *Welsh* or *Scotch* Pole-breed, which give Milk enough, and do not require such Keeping in Winter. I own, my *Holderness* Breed is more beautiful; but, I believe, the others will answer better. I am, Sir,

*Your constant Reader, and humble Servant.*

P. S. I have this Moment received the Trees; viz. sixteen Cherries, twelve hundred Beech-fets, one Apple, and the Cuttings of Elder, all safe: But there were two of the Cherries tied separate from the rest. I beg to know, whether they were different from the rest; they seem so by the Bud.

Sir  
G. C.

Sir *John* ——— Baronet. His third Letter to  
this Author.

S I R,

*April 27th, 1744*

**I** Received your last Letter, and have planted the wild Cherry-stocks, according to your Direction; and don't doubt but they will thrive apace, as they are in very rich Soil.

I also thank you much for your Receipt against Slugs and Flies: I have just tried it among a young Crop of Broccoli, and hope it will answer.

We have had so much Rain here, that it will greatly help my new Plantation, which is very fortunate.

I am, at present, in great Distress for a good Dairy-maid, my own having married, and left me: It's a Servant not easily found in this Country. If you will excuse the Liberty I take, I should be greatly obliged to you, if you could recommend me one well qualified, that can make good Butter, and fat and breed up Turkeys and Pheasants, and Things of that kind: Perhaps you may hear of one near you: I have made all the Inquiry I can here, and can't find one to depend on.

I have inquired, of late, to find Cows of the Pole-breed; but can't find any; so must wait till I hear of some; but I fear they are not Plenty: I prefer them, as many Accidents happen, which can't from Them.

A Neighbour of mine has a very large Nursery of Arbutus-trees, five Feet high; and has given me a Parcel, which I have planted at thirty Feet Distance, round a Field joining my Garden; and has a most beautiful Effect: I have also planted out the Beech-sets you sent me, to make a Wood, for Shelter for my Pheasants and wild Turkeys; of which I have a great many.

**P**

**I**

I paid your first Bill to Mr. *Astley*; and shall send him the Remainder by my Servant that goes to Town, in two Days.

I have had some Grass-seed from——in *America*, called *St. Timothy-seed*; which is an artificial Grass, that will grow six Feet high, and will mow four or five times in a Summer, in good Ground: I have sow'd it in my Garden, and hope to have a good Crop of Seed from it: If I have, as I hope, from its being come up very green, I will send you some, if you care for it: A Friend of mine try'd it last Year, with very great Success. I am, Sir,  
*Your, &c.*

*The Author's Remarks on Sir John's three Letters.*

—My several Answers to this Gentleman's Letters I forbear to insert here, because they would take up too much Room in this Month's Book: And, therefore, I shall conclude this Chapter, with only making some Remarks on them, which are on this Gentleman's diligent and bold Attempts to get a Year's Growth of the Cherry-trees, Beech-sets, and Elder-cuttings, &c. the sooner; though he laid out his Money, and planted them, so late as in *April 1744*. This I cannot but admire; but the less, when I consider how much he is Master of the true Notion of planting Trees, and managing them afterwards: A Qualification that all Gentlemen Planters should be endued with; because, whoever, in my humble Opinion, understands and practises this aright, may enjoy a Tree in half the Time that usually attends the common, wrong, careless Way of planting and managing it afterwards. This may, perhaps, be of infinite Consequence to those who would improve their large Estates, not only for bringing in an early Profit, but for giving them an Opportunity to see a noble Plantation, before they are too old to lose the Pleasure  
and

and Taste of such a valuable and delightful Improvement: A Method I communicate to all who buy Trees of me! For I furnish Gentlemen with these Beech-sets, and improved and wild Cherry-trees, &c. out of my Nursery, and the Woods, as I did to this Person, to whom I sent in all, besides the improved Sort, sixty-one out of our Woods, at Nine-pence apiece, with full Roots, and clear Bodies, six or seven Feet in Length; and hope, by his artful Management of them, their Sap will run firm and thin enough in *June* or *July*, for readily receiving Buds of the Kerroon Cherry, that I send to any Purchaser of such wild Trees *gratis*, for that Purpose. The Enjoyment of the Kerroon Cherry-tree is certainly of such Importance, that no Gentleman in *England* ought to be without it, who has an agreeable Soil and Situation for its Growth: And yet few, very few, have any Notion of this delicate Tree, and its Fruit; which not only yields a noble Repast at Table, but far better in the Cellar, when rightly made into a rich, pleasant, wholesome Wine, equaling, if not excelling, some Sort of Foreign red Wines; for the very Nursery-men in *Middlesex* are, most or all of them, Strangers to the true black Kerroon Cherry-tree; as I proved to be the Case, in the Month of *April* 1744, upon Inquiry among them for some of these genuine Sort, that I wanted, to make up a certain Number for a Gentleman. Nor did this Sir *John* ———, as he freely acknowledges, ever hear of the Kerroon-cherry, before my Book gave him an Account of it; though his Seat is not a great many Miles from *London*. But the Fruit and the Liquor are not the only Encouragements for planting this Nonsuch-tree; the Wood of it is likewise of great Profit for its fast-growing into Heart, under good Management, as being at its best Estate in sixty Years time; and



then, perhaps, it may sell for one Shilling a Foot, as I did one, whose Body was two Feet Diameter, that was sown into Boards, or Planks, for making Tables, &c. in Imitation of the true Mahogany-wood. His Beech-sets will be also very serviceable to him, as I have observed, for producing a Wood to grow into Timber, bear Mast, and shelter his Deer, Pheasants, and wild Turkeys. And when I heard this Gentleman planted his Fruit-trees round his plowed Fields, on Grass-balks, it gave me the more Pleasure to find a Person after my own Taste; for in this Method I plant my own Kerroon and other Fruit-trees, in single Rows, which yields far more Pleasure and Profit than Forest-trees. My most valuable Receipt to keep off Slugs and Flies, &c. this Gentleman gave me a Guinea for, on my bare Word, as being able to warrant its Success: It is no Powder; for that will waste away with Rains; nor can Chaff, nor Malt-dust, retain their Efficacy, when thoroughly soaked by Wets; for Water will render them smooth, and give the Slug an Opportunity to crawl over them; but my cheap Ingredient, that dresses the Land at the same time, is not to be served so; for, if it rains a Week or two together, it still answers the Purpose of keeping off Slugs, Flies, Worms, &c. The Pole-breed of Cows I help Gentlemen to, from a Breed now kept by a Nobleman. Maid or Men Servants I also hire for Gentlemen, as living near the best Dairy-Country for Maids, and in the best County for Plowmen, &c. To conclude; this most worthy Gentleman, whom I never yet saw, was pleased to employ me, confide in my Honesty, and paid my Bill honourably.

An

*An ESSAY upon the Nature of the Adder, Viper, Slow-worm, Snake, Fox, Badger, Land Eff, &c. and particularly upon the Residence, the Bite, the Venom, and the Cure of the three first; set forth in many Matters of Facts never before published: To be continued throughout the twelve Monthly Books of Agriculture Improved. By WILLIAM ELLIS.*

**A**N Essay on the Nature of these Animals I have been the more encouraged to attempt, as I live in a County that, perhaps, is furnished with greater Numbers of them than any other besides in *England*; for here our many inclosed dry Fields, Woods, Hedges, and Commons of Furze and Fern, give the most agreeable and natural Shelter and Encouragement for them to propagate their Species in abundance; and also because no Author whatsoever has hitherto published a sufficient Number of Facts, to shew where the Residence of these poisonous Creatures is made Choice of by them; how a Person may best avoid being bit by them; or, if bit, the different Ways of curing themselves: At least, several of those who have attempted writing on these Creatures, have done it so insipidly, and some, I believe, I may say, so erroneously, that a Reader is little or nothing the better for it (with Exception to that great Physician and Casuist, Dr. *Mead*, who, I understand, has exceeded all others in writing a Book on Poisons, which I never saw, and a few others); an Example of which I shall shew, by transcribing what Mr. *Workidge* says of Snakes and Adders; viz.

The greatest Injury (says he) that Snakes and Adders do to us, is in biting Children, Cattle, &c.

They affect Milk above any thing; and, as old Authors say, abominate the Ash: There you may

may use the one by placing of it hot in any Place where they frequent, to attract them, where you may destroy them; and the other by laying ashen Sticks in Places where you would not have them come: But this of the Ash is not credited.

But the most proper Remedy against these Vermin, is to keep Peacocks, which prey upon them.

Their Sting or Bite is most easily cured, if you timely apply a hot Iron to it, holding it so near as you are able to abide it: And it is by some ingenious Persons affirmed, that it will attract the Venom totally from the Wound.

Travellers relate, that in the *Canaries* the Natives cure the Biting of a very venomous Creature (that lurks among the Grapes, and usually bites them by the Fingers) by opening the Place bitten with a sharp Knife, by a strait Ligature below the Wound; and holding the Finger bitten upright for some time, out of which the Venom ascends, it being of a fiery Nature, naturally tending upwards; and may therefore be attracted by Fire, its Like.

*Remarks upon Mr. Worlidge's Account of Snakes and Adders.*—By the Account Mr. *Worlidge* here gives of Snakes and Adders Bites, he seems to put the Bite of the former upon a Parity with that of the latter, which is wrong; for there is a vast Difference between both the Breed and Bite of the Snake and the Adder: The Land Snake breeds her Young by Eggs she lays for the most part in Dunghils, that are hatched by the Heat of it. The Adder also breeds her Young from Eggs; but they are bred in her; and brings them forth alive: Which occasions the Virtuoso to distinguish them, by saying the Snake is bred oviparous, and the Adder viviparous. The Bite of the Snake is not so venomous as to cause more than a Soreness of the Part bitten; and is easily  
healed,

healed, even without any Application, in good-natur'd Flesh. But the Bite of the Adder is certainly mortal, if not stopt and cured by timely Art. The Land Snake therefore is frequently caught and made familiar, without doing any thing to it for preventing the ill Effects of its Bite. But the Adder, before it is used thus, must be deprived of its lurking Poison under its Teeth, and not to trust to that old silly Notion, repeated by many Authors, who have transmitted it down even to be mentioned by Mr. *Worlidge*; that ashen Sticks will prevent an Adder's Approach to the Place they are laid on. Egregious Mistake! for our Adders lie and breed in the same Hedges where ashen Stems grow. But this Error, as far as I can find, was first published by *Adam Speed* 1629. and reprinted in 1697. wherein he says Adders will not come near ashen Leaves; that, if Deers Suet is strewed on the Ground, the Scent of it will make them fly from it; that large Radishes are the Bane of them; and that the Smoke of Centaury and Wallwort will drive them away. Indeed I must own what Mr. *Worlidge* writes, that a hot Iron will extract the Venom of an Adder-bite, to be true. But this is a distant Remedy; and probably, before it can be applied, the Poison may have penetrated too far into the Blood; and then where is the Safety of such a Remedy? Which leads me to publish a present Remedy, and one that may be depended on for the curing of any Adder-bite, that was tried in the following manner; and is so ready an one, that if a Person has no Remedy about him, this may effectually supply it. But before I do this, I shall give some Account of the Nature and Residence of the Adder or Viper.

*The Nature and Residence of the Adder or Viper.*

—The Words *Adder* or *Viper*, by many, are taken for synonymous Names, or Terms, for one and

and the same Animal. Others insist on it, that they are distinct Serpents, and that both alike bring forth their Young alive. The Viper is said to be a little shorter and flatter-bodied than the Adder, and has a more fiery Poison; for that it kills in three Days at farthest, if not prevented. It is an universal Venom, heating the Body as if it was set on fire; attended with Convulsions, Weakness, cold Sweats, Vomiting, and then Death. The Adder is a hotter Serpent than the Snake, but lesser and shorter, and of a darker Colour; little or no way inferior in its Poison to the Viper, but thicker, longer, and of a brighter Colour: His Skin is composed of circular Scales; by which, when extended, he crawls, rears himself up, climbs a Tree or Bush, and suddenly enlarges himself as if he leap'd; he is of a cold Nature, and therefore slow in his digestive Faculty: Some say he has no Stomach; but that, to supply it, when he swallows a Mouse, a Mole, a Frog, or young Bird, whole, in the Bite he mixes some of his Saliva or Poison with it, which corrodes and digests the Flesh. Adders are found to be more numerous in the Southern Parts of *England* than elsewhere, as in *Cornwall*, *Devon*, *Dorset*, *Somerset*, *Wilts*, *Hants*, *Berks*, *Surry*, *Kent*, *Essex*, *Middlesex*, and *Hertfordshire*; occasion'd, I suppose, from the Dryness of their Soils, the great Shelter of their Woods, Hedges, Fern and Furze Commons, and the warm Temperament of their Air, &c. But I could never learn, that any Adder, or Viper, or Snake, was ever found in *Alesbury Vale*, and very few, if any, Land Snakes in *Hertfordshire*; if there be any, they lie in that Part next *Middlesex*. An experienced Adder-catcher asserts, that this Serpent sheds his Skin or Hackle every Year; the Male twice, the Female once; and have but one Cast or Litter of Young in that time.

Their

Their Testicles lie within-side in the hinder Part of their Body, about the Thickness of a common Packthread ; and, as I have observed, are about an Inch in Length : These are said to help their crawling. The Adder is found above Ground from *February* to *September* ; in which last Month they commonly earth themselves for the Winter in Holes of the Ground, in Banks, in Hedges, in Woods, in the Roots of old Trees, and in old Walls. A Labourer was stocking up the Root of an old Oak near my House, which when he had got about two Feet down into, he pulled out a rolled Adder, with his Mattock, that lay in a dry Place, where he observed were several Holes made in the Ground about it, an Inch wide each, supposed to be done by this Adder for the Convenience of lodging its Young : In a Quarter of an Hour's time she began to crawl, but was soon dispatched by the Man. Near the Residence of the last lay another, which he likewise kill'd the same Day : And on the Morrow, at the same Place, he dug out a third, which he also killed, as he thought ; but on the following Evening, to his great Surprise, he found all three alive, two Male, and one Female, as he discovered by their Skins : The Males he knew were bred but the Summer before, because they were not so big as the Female. The same Man has found an Adder under an Hazel-root, and another under one of an Ash, without any manner of Provision for the Winter ; for these Creatures subsist all that time on their own Body and Spirits, by a Stupor, and somniferous Quality, inherent to their Nature ; as is evident also by the many that have been found in the Winter in the ruinous Walls of the old Castle at *Berkhamstead*, *St. Peters* in *Hertfordshire* ; where is a dry hilly Situation, that gives the Boys frequent Opportunities, in the frigid Seasons, to

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take

take and carry them about that Town in their twisted Posture for the View of the Curious. And here some of them are seen to arrive at a surprising Bulk, beyond the Field Adder: But whether this is owing to their Plenty and Variety of Food in a contiguous large Garden, Nursery, and grazing Ground, or to their safe and long Shelter among the Crannies of the old Walls, I cannot determine: However, this seems to confute the common Notion, that the Adder never survives his first Litter or Brood; because, as they say, the Young-ones eat their Way out of their Dam's Belly, after they have been received therein so often, till their Strength and Bigness enables them to perform it. They live on Mice and Moles, which they take in their Holes; also on young Birds, Frogs, young Hares and Rabbits, and therefore of ill Consequence in Warrens: They have been known to climb a slender Tree eight Feet high, and devoured young Magpies in their Nest. If an Adder is found in a Place To-day, he will not be far off the same To-morrow; for these have always their Residence near their Hole, nor is the Male at any great Distance from the Female at any time. On *Berkhamstead*, *Hudnal*, and many other Commons in *Hertfordshire*, Adders are often found by the Men that cut Furze for their Living, and mow Fern; for in these they enjoy a safe Shelter: And though the sharp prickly Ends of the Furze keep off Boys and Men from searching after them, they do not hurt their Bodies; for their Skin is proof against the Spines of this Vegetable. On this Account the Furze Common becomes one of the greatest Sort of Nurseries to the Breed of these Animals: And as our Part of the Country is accounted the woodiest and hilliest Part of *Hertfordshire*, Adders breed here in the greatest Plenty. Near the famous large woody Park

Park of *Ashridge* runs an Hedge from North to South, on the Ridge of an Hill of plowed and Grass Grounds, that by this Situation has the Sun to shine on it early in the Morning, and late in the Evening; which Hedge extends its Length near half a Mile, and is commonly so well furnished with Adders, that a Catcher of them declared it was worth thirty Shillings a Year to him; for that he always took care, on catching some, to leave enough behind to breed a Stock for him another Year.——Now, as these Accounts have taken up so much Room in my Book, I am forced to postpone writing my first-mentioned Proposal, how a Person may cure himself of an Adder's Bite upon the Spot of Ground where he receives the Damage. But this and others, please God, I intend to enlarge on in my next Monthly Book of *Agriculture Improved*, for the Month of *June*.

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## CHAP. XVII.

### *Of the Nature of the destructive Slug in May.*

**O**F an Experiment made on the destructive Slug, or little naked Snail, by a Plowman.——It was on the 9th Day of May 1744. that my Plowman sowed fifty Bushels of Coal-foot over two Acres and an half of Barley, that was sown broad-cast, or in the Random-way; and, being a backward cold Spring, its infant green Blade did not begin to appear till about the 1st of this Month; and on the aforesaid 9th Day, as my Servant was sowing the Soot, he perceived great Numbers of Barley green Blades lie on the Ground, as if something had bitten them off near their Roots, where they are the sweetest and tenderest. This moved his Consideration what should have been the Occasion



of it; querying, whether it was the Worm, the Slug, or the Beaks of Field-fowls: But it was not long before this his Curiosity was satisfied, by the Sight of many Slugs, or naked little Snails, that lay on the Surface of the Ground; which confirmed him in the Assurance, this Mischief was done by the Slugs: And as he was thus sowing the Soot, he had a mind to try an Experiment with the same on a Slug. To do which, he took one, and put it on some Soot; then he took more Soot, and covered the Slug all over: But all this did not overcome the Insect; for when he felt the sulphureous black Powder affect his Body, it so enraged him, that he seemed to employ his greatest Efforts to make his Escape; but, finding the Dryness and Roughness of the Soot prevented him, the Slug slipped his outward Skin, or what we call his Hackle in *Hertfordshire*, and crawled away, leaving this slimy loaded Coat with Soot behind him; which furnished him with a lighter and smoother Body, and enabled him to get away with the more Facility. The Ploughman, seeing this, had a mind to try a second Experiment, in the Manner he did the first; and accordingly buried the same Slug, as before, in Soot; which irritated the Creature to that degree, as obliged him to slip his outward Skin, or Coat, a second time, and make a crawling Escape from the Place. The Man, seeing this amazing Action performed by this small Animal, was resolved to try a third Experiment on the same Slug; and, for this Purpose, laid it a third time in Soot, as he did the first and second time: And here it was, that the last Trial ended with the Life of the Creature; for now his Strength failed him, and he presently expired in the little Parcel of Soot. From hence I would observe, that I suppose the greatest Virtuosoës never made the like Experiment as my  
Ploughman

Ploughman has done ; which, though done, as it were, accidentally, it may, perhaps, tempt some greater Wits to scrutinize into the Make and Nature of this Animal, which, to Farmers and Gardeners, is a most pestiferous Creature : To the former ; as it is one main Occasion, sometimes, of rotting Sheep ; for these Slugs, in warm wet Weather, in some Years, will lie on Commons, and in Fields, in great Numbers, in a small Space of Ground, where the Sheep being obliged to feed, lick up their slimy Bodies, and swallow, for aught I know, as it is very probable, abundance of them, that helps to increase the watry Quality in Sheep, and prove their Bane, according to the general Notion of both Vale and *Chelturne* Farmers. These are the Insects which devour Crops of Peas, Rapes, Turneps, and other Vegetables, while they are in their infant Field-growth ; and likewise damage Crops of Wheat, Barley, &c. To the latter ; they infest Gardens, and are destructive Arch-Enemies to most Things that grow therein ; and, in some Years, are so numerous, as hardly to be conquered ; as I shall farther shew, by what follows ; *viz.*

*How a large inclosed Field of Peas was devoured and eat by Slugs.*—— In the Parish of *Studham*, in *Hertfordshire*, a Yeoman, Owner of a very large Farm, that he occupied Himself, having sown one of his inclosed Fields, containing twelve or fourteen Acres, with Hog-peas, in the Random-way of sowing them ; a wetfish warm Season succeeded, which gave the Slugs the greatest Encouragement to come out of their Cells, and feed on the luscious, young, tender, green Heads of the Peas ; and they so fed on them, notwithstanding his drawing his heavy, large, wooden Roll, of eight Feet long, over them, that they devoured so many of them, as obliged this Person to plow up the whole Field,

Field, and sow the same (if I mistake not) with white Oats.

*How another Farmer lost Crops of Hog-peas, by the Slugs, in 1744.* — This Piece of Destruction was committed by the Slugs in the Month of *April* and *May* 1744. In *April*, there was a Fortnight's or more Rain fell, which invited the Slugs in quest of their first and Spring Food; for these Creatures are of the somniferous Tribe, that sleep all the Winter; but whether they be Annuals, or longer-liv'd Animals, I can't determine; I am inclined to think they are of the first Period: This I know, that they are bred by Eggs laid in the Ground, rather below the Plough's Entrance, and this in a very numerous manner; which, in mild Winters, and wet Summers, increase at an infinite rate, in a very little time; for nothing stops their Breed, but very severe long Frosts, and very dry Weather: And, therefore, we have had but very little of their Company, since the hard Frost of 1739, till now; which contributed, in a great degree, to the Plenty of Grain, &c. that has since happened. But these last three dry Years being very mild ones, and few Showers of Rain falling, they seem now to have recovered their usual Numbers, that do the Farmers and Gardeners great Damage; as was the Case of this Farmer I am writing of; who, after he had sown his Hog-pea Seed in the random broad-cast Way of sowing them, and harrowed them in, the Peas grew up very well, with a promising Prospect of a plentiful Crop: But so it was, that as their green infant Heads grew up, the Slugs lay at them, and gnawed their little Leaves, till they were ragged; and, at last, the very Stalks were, in a great measure, devoured by them; so that several Pieces of Peas, in a common Field, not far off *Gaddesden*, were mostly ruined by these Slugs: And, as the Peas were sown in a common Field,

Field, among Parcels of other Peoples Land and Corn, this Farmer could not re-plow and sow the Ground again with white Oats, or other Corn, that would bear latter'd sowing.

*How these two Farmers might have prevented their Pea-crops being so much damaged by the Slugs. —*

Here were two Faults attended these Crops of Peas: One was, that the Farmers did not keep their Ground in sufficient Strength of Heart; if they had, the Richness of the Soil, very probably, would have forced the Peas into such a quick Growth, as to have caused them to grow faster than the Slug could have eaten them. The other was, the Farmer's rolling his Peas in the Day-time; which was wrongacting, because then the Slugs were, most of them, retired into their subterranean Cells, and lay safe out of the Squeezing of a Roll. Therefore he should have obliged his Servant to roll his Pea-crop about One or Two a-clock in a Morning, when the Slugs were most busy in feeding on it; then he might expect to have had all, or most of them, squeezed to Death, by his Eight-foot-long heavy wooden Horse-Roll, and have preserved his Peas. But there are two other Remedies, that would have infallibly prevented the Ruin of these Pea-crops: One is, by the new-invented double Horse-break: If the Peas had been sown in the Drill-mode, and this Machine employed afterwards in a right Time, then the Slugs could not have hurt the Peas to any great degree: The other is a Remedy I never yet publicly discovered, nor privately, except to two Gentlemen, as I have before hinted; which would have assuredly secured these Pea-crops, that were sown in the Random-mode, from the Slugs Rapine, and forced on their Growth with much Vigour: So that whoever are Masters of this Horse-break Instrument, and my Receipt for the other Application,

tion, need not fear what Hurt this horrid Insect can do to either Field, or Garden-crops; sown in any manner of Fashion.

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## C H A P. XVIII.

*Of the Sparrows Mischief to Farmers.*

**O***F the Breed of Sparrows in the Month of May:* — Of all Birds that do the Farmer Mischief near Home, none is so hurtful as the Sparrow; and therefore his Destruction ought to be most diligently endeavoured: And, as Prevention is preferable to Remedy, their Breed, in this Month; may, in a great measure, be prevented; whereas, if they are let alone to perfect their Young, it may, perhaps, be out of a Farmer's Power to destroy all of them afterwards. Now this is the first and chiefest Month in the whole Year, for killing young Sparrows in their Nests; that is, as they build them in *April*, they hatch in *May*; and if they are not destroyed in their Eggs, they ought to be before the Young-ones can fly. The Sparrows differ from most other small Birds, in the Multiplication of their Species; for these build their Nests in the Thatch of Barns, under Tiles of Houses, in Holes of Walls, and hollow Trees, and among the Boughs of a thick-headed Tree. There was a Boy who found a Magpye's Nest in a Tree; that had Eggs in it; upon which the Magpye forsook it, and a Pair of House-sparrows took Possession of it, by making a Nest on the Magpye's Nest, and laying Eggs in the same. The Boy, some time after, climbing the same Tree, to take out young Magpyes, that he thought, by that time, had hatched, to his great Surprise found a Sparrow's Nest, and the Magpye's Eggs under it: And,

And, on *Gaddefden-Green*, a very high Fir-tree grew, whose Body, after it was cut down in 1743. measured above seventy Feet in a strait Length : This Tree, being furnished with a thick close-branching Head, became a Refuge for many Sparrows to build their Nests in ; because it was so high, that nobody dare climb it ; and it was from this Nursery-tree, that I, and several Farmers, suffered considerable Damage, by the great Numbers of Sparrows bred here. In the Beginning of this Month, therefore, their Nests should be destroyed, and several times afterwards in the same Summer ; but more than ordinary now, because their first Young will be ready to fly about the Middle of *May* ; and, if the old ones are not hindered, they will breed till, and in, Harvest-time ; so that, it is thought, one Pair of Sparrows will bring up three or four Broods in a Year, if they are unmolested, and, perhaps, have five or six Young-ones each time ; for these hot Birds are so prone to increase, that if their Eggs are taken out, and their Nests are left behind, they will lay more Eggs in the same, as being a Bird not easily frightened, and made to forsake its old Habitation.

*The Damage that Sparrows do to Farmers.*————

The Sparrow is the most domestic Bird of all others ; and therefore the most capable of plundering and ravaging the Farmers Barns, Granaries, and Home-fields of Corn, &c. which this small Creature is very capable of doing, by his very hard Corn-bill, and ravenous Nature, that prompts him to make many bold audacious Attacks, not only in Barns, Stacks, and Ricks of Grain, but also on the Wheat, Rye, Barley, Oats, and Peas, in Fields, when their Kernels, before and when they are got hard enough to become their substantial Food, especially that Part of the Corn that grows on the Outsides of Fields, next to  
R Hedges ;

Hedges; for here these voracious Creatures fly from the Grain to this close Shelter for their Safety and Refuge; but where the Sparrows are in a large Flock, these outside Ears and Pods will not satisfy their keen Appetites: I have known good Part of a Field of Barley damaged by them, while it was standing to ripen; for these Sort will keep on the Wing, while they peck the Barley-corns out of the Ears. Secondly, Wheat also, in its unripe Kernels, and afterwards, till it is reaped, the Sparrows take all Advantage of glutting their Stomachs with this nourishing Food; and afterwards, while it stands in Shocks in the Field: But most of all, when a Crop of Wheat, Rye, or Barley, by its great Bulk, falls down, and is laid flat, by heavy Rains; then the Sparrows make prodigious Havock, by enjoying an easy Opportunity of standing to peck out its soft Grains. Thirdly, It is the same with Field Pea-crops, that, by their couchant Posture of Growth, give Flocks of Sparrows a free Access to their Pods, which their strong Beaks penetrate with little Pains, to come at, and eat, the green and ripe Peas within them: And this Mischief they do with the greater Eagerness, as this delicious sweet Food is preferred by them to most others: So in Gardens, where the largest Sort of Peas are made to climb up Sticks erected for producing their greater Increase, and ripening them sooner than ordinary into the largest Pods; as these Crops generally grow near the House, these Home-Birds I have known to devour, I believe I may say with Assurance, above half a Crop in a little time, while the Peas were in their green Pods. Fourthly, Sparrows are likewise Arch-Enemies to Tree-fruits, Apples and Pears, while they, in their tender, green, infant Growth, are pecked at by them, as they prove a Novelty to them in this scarce Corn-  
season

season of the Year: So Mulberries, the early *Kentish* red Cherries, the black Kerroon, Hearts, and all the improved Sorts, as they are a soft luscious Food, that, for the most part, grow in Gardens, Orchards, and Home-fields, the Sparrows lie at them all the time of their Ripeness, and furiously feed on them; so that, in a scarce Year of Cherries, when the Gardener and Farmer should make the most of those few they have, these Sparrows become their horrid Enemies, and deprive them of good Part of their Crops. Fifthly, Sparrows not only hurt us thus in our Barns, Fields, Orchards, Gardens, &c. but even in our Farm-yard, by settling among our Hens, and eating Part of the Meat we sometimes throw among them twice a Day; which gives a Flock of these bold familiar Birds an Opportunity to devour great Quantities of Grain in a Year, to a Farmer's great Loss, besides the infinite Numbers of Kernels that they peck out of Ears of Wheat, Rye, Barley, &c. thrown into the Yard, after they have been threshed, and escaped the battering Force of the Flail's Blows, to get them clean out. The Sparrows, and only the Sparrows, dare enter our Hogsties, Stables, Cow-houses, Rabbet-houses, and other Out-houses, and feed among our Swine, Horses, Cows, and Sheep, which, in the Winter-time especially, they seldom fail to do; and this they venture to do with the greater Assurance, if they are kept out of Barns and Granaries, from feeding on the Grain that lie in them; for these domestic Enemies are endued with so much Courage and Subtlety, as to enter into these Places through very small Holes and Crevices; and, when they have found out a free Passage into full Quantities of hoarded Corn, they then fail not of being frequent Porters of such easy-come-at Food, and carry away great Numbers of its Grains in a very



little Space of Time; insomuch that, it is computed, every Dozen of Sparrows, killed before the Breeding-season, saves the Farmer a Quarter of Corn before the Year's End. Sixthly, Sparrows are said to be Enemies to Bees, according to *Dr. Warder*, who, in his Book of the Monarchy of Bees, p. 63. has these Words: "There is yet another Enemy, which passes almost unsuspected, which destroys abundance of Bees; and that is the Sparrow, especially in their Breeding-time. The manner of seizing their Prey is thus: They come hopping on the Ground before your Bees; and if they find none pitched on the Ground, they jump up, and take them flying, and away to the Nest with it, and come and fetch another. Indeed, all the time of their having Young-ones, both young and old have their Living mainly upon Bees. The best Way to prevent, at least, a good Part of this Mischief, is to encourage Boys, in the Spring-time, to spoil their Nests; and, now-and-then, for giving them a few Farthings, you may have all the Nests near you destroy'd." But where they are not destroy'd, take the following Method to keep them off your Corn, while it is standing in the Field:

*To keep off Sparrows from Crops of standing Corn, Fruit of Trees, &c.*——To do this in the most lively Manner, catch one, or more Sparrows, with a Trap-cage, Lime-twigs, or with a Bat-fowling Net; then take one, or more, and hang them up by the Leg alive, with a Packthread-string, to a Pole or Stick, in the Field or Garden; and, by its screaming Noise, it will frighten the rest, and keep them from coming near the Place.

*Remarks on a Letter, said by Mr. Bradley to be written to him, on account of the great Service that small Birds do to Fruit-trees, &c. by their devouring*  
several

*several Sorts of Insects.* ——— At Page 216. in his Second Volume of Husbandry and Gardening, the Letter begins thus: “ *Sir*, Reading lately Mr. “ *Mortimer’s* Treatise of Husbandry, I took notice of his remarkable Prejudice against the “ winged Species, inſomuch as to wiſh for a Law “ for extirpating ſeveral Tribes of them: I ſhall, “ in this, beg Leave to be an Advocate for theſe “ Innocents, who cannot ſpeak for themſelves; “ and endeavour to ſhew, that the Service they “ do us, abundantly balances the Inconveniencies; “ and that, inſtead of being Nuiſances, they are “ Bleſſings; and that, without them, we ſhould “ be like the Land of *Egypt* under the Curſe, “ That the Graſhoppers would come, and Caterpillers innumerable, and would eat up all the “ Graſs in our Land, and devour the Fruit of our “ Ground; and multiply ſo exceedingly, as to “ creep into Kings Palaces; and Flies would ſo “ abound, as to be extremely incommoſious to “ us.” ——— That he has obſerved a Couple of Sparrows, who had Young-ones, make twenty Turns each Hour; and, reckoning twelve to the Day, one Neſt, in one Week’s time, deſtroyed 3360 Caterpillers: That the Wren, Tomtit, and other numerous Breeders, deſtroy a much greater Number, who feed fourteen or fifteen Hours in a Day: That as he lodged at a Gardener’s, five Miles off *London*, in the Houſe, Barn, and Stable, there were ſeven Neſts of Sparrows, two of Robin-red-breſts, two of Wrens, and one Redſtart: In the Orchard and Hedges, one Chaffinch, one Hedge-sparrow, two Tomtits, two Chats, one Linnet, one Yellow-hammer, and one Tit-lark: That, according to the aforeſaid Computation, there were deſtroyed by theſe twenty-one Neſts, in one Week’s time, 70,560 Caterpillers: And that the Singing and Sight of the different Bodies and Colours

Colours of small Birds heighten the Pleasures of a Country Life. — Now, most of this Gentleman's Observations, I agree, carry with them a great deal of Reason; nor have I any thing to object, but what he writes of the great Service that Sparrows do, without Exception: It seems to me, that he had not a Notion of the Damage that Sparrows do in and about Farm-houses, Barns, Stables, and Out-houses: If he had, I presume, he would have thought it necessary to take notice of the Mischiefs they do here. In a Garden, indeed, there is seldom so much Grain sown, and let stand to be ripe, that they can do much Damage; but the Service they do, in devouring Insects, as this Gentleman observes, may more than balance the Damage: But their Breeding in and about a Farm-house, Barn, Stable, and Out-house, is a different Case; for as they are, by his own Account, Birds that build more Nests about these Places than any other Bird, and have three or four Nests in one Summer, their Increase is beyond all other Birds; and, if they do a Farmer more Mischief than any of the winged Tribe, the Damage must be the greater: And so it is with the Sparrow; for when these build about a Farm-yard, they don't confine their Search after Insects; no, they have here Variety of more substantial Food, as Wheat, Barley, Oats, &c. These are their beloved Meats, that we generally find in their Crops, or Stomachs, after killing them: And although they may bring Insects to feed their Young with, in their tender unfledged Condition; yet, as soon as their Bodies become robust enough to digest Grain, they are not wanting to feed on the same; and which, to mine and all the Farmers Cost in our Parts, we find to be too true throughout, or almost throughout, the whole Year; and which we cannot well hinder, so long as they have

Liberty

Liberty to fly ; because there are few, and very few, Barns to close-boarded, but what the Sparrows can get into ; and so into many Granaries, Ricks, and Stacks of Grain, where these Arch-Thieves find Opportunity to pillage from the Farmer : But, where no Wheat, Barley, or Oats are to be had, the Sparrows are not capable of doing so much Harm ; if they were, the *Londoners* would not increase their Breed, by fixing earthen Bottles against the Sides of Walls, for them to breed in ; as I have seen done, to the Number of, I believe, twenty Bottles at one House : Nor would a Gardener, I suppose, suffer seven Nests of Sparrows in a Barn, Stable, and House, if he was to sustain as much Loss by them, as a Farmer does, both at home and abroad. Our Church, that stands about a Quarter of a Mile from any House, is seldom without one or more Nests of Sparrows in the Summer-time. Here, indeed, they live chiefly on Insects, because they have no Corn near them, till the Rye, Wheat, or Barley, gets into Ear ; and then, as soon as the Kernels become fit for their Turn, they will bear themselves on the Flutter of their Wings, while they peck their Meat out of the upright Ears : And I am apt to believe, that that Gardener, who quietly suffers Sparrows to breed in and about his House, when it is in his Power to destroy them, is ignorant of a great deal of the Mischief they do, even in a Garden ; for I can assure him, that the Sparrow scratches like a Dunghil-hen, to come at his Food, beyond all other small Birds ; and is worse, in this respect, than the Rook, that is said to employ only his Beak to come at his Meat : Nor do I know of any other small Bird that scratches for his Victuals, besides the Sparrow : He must, therefore, consequently, devour great Numbers of Seeds, presently after they are sown, and raked or harrowed into

into the Ground: But some keep the Sparrow tame in a Cage, for the sake of his learning to talk, and sing the Note of another Bird, hung by him from the time of his being taken out of the Nest.

*How to destroy both old and young Sparrows.*——

Dr. *Warder* is very right in saying Sparrows Nests are best destroyed by Boys, because it is a pleasant Sport for them to climb and take them out of their Holes; and the more so, if a few Farthings are given them as an Encouragement to do the same: But he is wanting to give another necessary Piece of Advice; and that is, That the Boys, on taking out a Sparrow's Nest, should always totally destroy the Nest; which they seldom or never do, but throw it down, and leave it on the Ground where it fell; and then the Sparrows are saved a great deal of Time and Labour in getting Materials for building a new Nest; for the old one being near, they immediately fall to work, and remount it Piece by Piece, till they have replaced it in its former, or some surer Situation. I know an old Woman in my Neighbourhood, who, because she rents a Tenement next a Farm-yard, and can hardly lay any Bread near the Back-door of her House, but the Sparrows are ready to come in and eat of it, takes particular Care to gather up all the Sparrows Nests that the Boys pull out, and burn them, to hinder the Sparrows using them again; and she declared to me, she has gather'd Lapfuls of such Nests in her time, and burnt them all. This is one Way of destroying Sparrows: But as many of these subtle Creatures build in very high Trees and Houses, their Nests are inaccessible; and so in lower Places their Nests sometimes lie so far in, that they can't be come at with the Hand. In these Cases the Sparrow-net is wanted; of which there are several Sorts, that I shall omit writing  
of

of, except one; and that is the common Clap, or Bat Fowling-net, that we buy for Half-a-crown ready fixed on Poles, and completely made for Use. This Net a Man holds in his Hands very early in a Morning, or very late in the Evening, when the old Birds are in their Nests, in this Month, or any other; and if the Nest is too high to reach with the Net from the Ground, we get a Ladder, and hold it against the Eaves of Houses, Barns, Dove-houses, and such-like Places, as also against Stacks of Corn or Hay; and if they were thatched, it would be better; and, being set close against them, to knock and make a Noise to force them to fly out into the Net.—Thus I have destroyed great Numbers of Sparrows, both in Winter and Summer, by the Bat Fowling-net, which I always keep by me; and is mostly made use of by my least Son and Servant, to whom I give Two-pence a Dozen for all the Sparrows they bring me; and yet can't destroy them so much, but that I have a great deal of Damage done by them every Year, which indeed makes me write with some Inveteracy against the Sparrow; for whose Destruction I not only keep a Net, but also a Trap-cage, which when furnished with another Sparrow, by way of a Decoy, I lessen the Number of some of their Tribe; and so my Boy does by a Fall-trap, set on a Tree or Hedge, a Pail or Wall, that is made with four Bricks set up Edgewise in the Form of a Square, almost close together, with a square Tile on the Top, and two or three Bits of Sticks in the Inside of the hollow Square. Here, by laying a little Corn on the Outside of the Trap, and some within-side, the Sparrows are invited to settle on a Trigger-stick, and so are caught by the Fall of the Tile: But this is chiefly a Winter-Trap. To which may be added Lime-twigs, laid at or near the Places

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where Sparrows usually settle; and, by these, Boys sometimes catch them, to their great Diversion, and the Farmer's Benefit. The best Use that Sparrows can be put to, that I know of, is, to bake them in a Pye, with or without little Bits of Bacon among them: This Sort of Pye I have eaten of at a Gentleman's Table; and is deemed a restorative Food for weak Persons, dressed in this or some other Form. — As to Mr. *Mortimer's* wishing for a Law for extirpating several Tribes of small Birds, there was a Law made, I suppose in Queen *Elizabeth's* Time, for obliging all Churchwardens to pay (if I mistake not) Two-pence a Dozen to any Person who should bring to them so many Heads of Sparrows; which Law, as it remains in Force at this Day, as well as others, for encouraging the Destruction of the Pole-cat, Hedghog, Fox, &c. a Person may oblige the Parish Officers (if they refuse) to pay them this Money, so appointed by Act of Parliament, by a Warrant from a Justice of Peace. I shall conclude this Subject or History of the Sparrow, with the following Account.

*How a Boy used to rob Houses by means of a tame Sparrow.* — I have read of an arch Thief, that was very young in Years, but an old Practitioner in the horrid Wickedness of Thievery; for, it is recorded, he had stole at times to the Value of five hundred Pounds. His Name was *Rawdry Audry*, who, under sixteen Years of Age, after having been several times in *Newgate*, tried and convicted for several Crimes, and, after a little suffering for them, discharged, was at last condemned to die for a Robbery, and hang'd at *Tyburn*. Now one Sort of his Robberies was performed in this Manner: He used to get a young Sparrow, and learn it to fly from and to his Fist; and, when he had duly qualified the Bird for his Purpose, he look'd out

out at a proper Time of Day in some of the *London* Streets, for a Sash-window being set open in the Heat of Summer (as many then usually are, to let a cool Air into the Room): When he had met with one, where a Side-board was furnished with Plate, he would so order it, that the Sparrow flew into the Room; and then he immediately knocked at the Door, and, with a very humble Air, pray'd the Servant to let him come in, to get his Sparrow: The Maid or Man-servant, seeing a Boy with a fair Excuse, had no Suspicion of his foul Intent; and therefore let him freely into the Room; where he so cleverly acted the Legerdemain Artift, as seldom to leave the Place, without bringing off a Piece of Plate.

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## C H A P. XIX.

### *Of the Damage of Pigeons.*

**H**OW a Farmer had a Four-acre Field of blue Peas intirely ruined by Dove-pigeons.—One Mr. Pope, a Farmer, living in the Parish of *Berkhamstead St. Peter's*, in *Hertfordshire*, had an inclosed Field of four or five Acres, that, in *April*, he sowed with blue Peas in the Random-way; and they grew well, till, in this Month, they were attacked by several Flocks of Dove-pigeons, that were kept by Gentlemen in the neighbouring Parts of this Country: And, as the Peas were about four or five Inches high, they fell to work; and, greedy of this green Prey, they eat the Heads of the Peas so clean off, that they were intirely spoiled for a Crop; insomuch that the Farmer thought it the best Husbandry to turn his Horses into the same Field, to eat up the Stalks which the Pigeons left:



So that this same Farmer was forced to buy the green and ripe Peas that he used for his Family the rest of the Year. This Loss happened in 1742. And when the Farmer (whom I knew) was asked by his Friends, if he had any Recompence made from the Owners of the Pigeons ; he said, No ; nor dared to kill them, lest he incurred the Penalty of the Act, and paid five Pounds for shooting each Pigeon. To save me the Labour of commenting upon this Farmer's Hardship, in thus suffering by Pigeons, I shall recite what Mr. *Worlidge* has ingeniously written on this Subject ; who, though he only takes notice of their destroying Grain, and not the green Heads of Peas ; yet has touched this Matter, in the main, so well, that, I am sure, his more learned Pen has done it better than I could.—Pigeons, he says, are a Fowl that bring great Advantage to their Owners ; but prove a far greater Annoyance, and Devourer of Grain, to all the rest of the Neighbourhood : It is an unknown Quantity of Wheat, Barley, Peas, &c. that these devour ; not to mention the prodigious Computation that some have made of the Damage committed by them on the Corn, Grain, &c. Yet it is most evident, that they destroy a great Part of the Seed and Crop : Notwithstanding, several stand for their Vindication, alleging, that they never scrape ; and, therefore, take only the Grain that lies on the Surface of the Earth, that would otherwise be destroyed, and not grow. To which I answer, That that very Corn that lies on the Surface, may prove the best Corn, unless (in Winter-corn) where the extreme Frosts destroy it, or (in the Spring) the extreme Drought ; it having been, of late, found to be a Piece of very good Husbandry, in some light and shallow Lands, first to plow it about *August* ; and then to run the Fould over it, and well settle it ; and, afterwards,

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to sow and harrow it ; which must needs make well for the Pigeons, and ill for the Husbandman, where they cannot be kept from it.

And it is to be observed, where the Flight of Pigeons fall, there they fill themselves, and away ; and return again where they first rose ; and so proceed over a whole Piece of Ground, if they like it : Although you cannot observe any Grain above the Ground, they know how to find it ; as I have seen the Experience of it, that a Piece of about two or three Acres being sown with Peas, the Pigeons lay so much upon it, that they devoured, at least, three Parts in four of it ; which, I am sure, could not be all above the Surface of the Ground : That their Smelling is their principal Director, I have also observed ; having sown a small Plat of Peas in my Garden near a Pigeon-house, and very well covered them, that not a Pea appeared above Ground. In a few Days, a Parcel of Pigeons were hard at work, in discovering this hidden Treasure ; and in a short time, of about two Quarts, I had not above two or three Peas left ; for what they could not find before, they found when the Buds appeared ; notwithstanding they were hoed in, and well covered : Their Smelling only directed them, as I supposed, because they followed the Ranges exactly.

The Injury they do at Harvest on the Peas, Vetches, &c. I hope none can excuse ; therefore we account these amongst the great Enemies the poor Husbandman meets withal ; and the greater, because he may not erect a Pigeon-house, whereby to have a Share of his own Spoils ; none but the Rich being permitted so great a Privilege ; and also, so severe a Law being made to protect these winged Thieves, that a Man cannot *sum defendo*, encounter with them.

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You have, therefore, no Remedy against them, but to affright them away by Noises, or such-like: Also, you may shoot at them, so that you kill them not; or you may (if you can) take them in a Net, cut off their Tails, and let them go; by which Means, you will impound them: For when they are in their Houses, they cannot bolt or fly out of the Tops of their Houses, but by the Strength of their Tails; which, when they are weakened, they remain Prisoners at home.

*How to prevent the Damage of Pigeons.*—Scarecrows, Noises, nor even Shooting, without Killing, are capable of keeping off Pigeons from devouring new-sown Grain, or the young, tender green Heads of Peas, when they are two, three, or four Inches high; for these are such bold, audacious, domestic Fowls, that none of these Inventions will prevent their Mischief; and the less, because, at this Time of the Year, a Pea-crop is generally in its infant, tempting Growth, with green Heads, when the Pigeons have hardly any other Field-meat besides, except the Seeds of Bent-grass; which occasioned the old Verse:

*The Pigeon never knows more Woe,  
Than when he does a Benting go.*

And, as very few of their Owners give them any Meat at home at this time of the Year, they are the more voracious in devouring any they can get abroad in Fields and Gardens; which so exasperated Mr. *Worlidge*, by the Loss he sustained by them in his Garden, that he has published several Secrets to intoxicate, and take Pigeons, &c.

*First Receipt for intoxicating Fowls.*—Take a Peck, or lesser Quantity, of Wheat, Rye, Barley, Peas, or Tares; to which put two or three Handfuls of *Nux Vomica*, and boil them well in running Water,

Water, until they are almost ready to burst; then take it off the Fire; and, when they are cold, strew them upon the Land, where you design to take the Fowl; and such as eat thereof will immediately be intoxicated, and lie as if dead; so that they may take them up at Pleasure, provided you stay not too long; for the Dizziness will not last long upon them; therefore be near at hand: And it were not amiss to kill them presently, and take out their Entrails, although there is no great Danger in it.

*Second Receipt.* — As the greater Sort of Land-Fowl are thus taken, so may you take small Birds; only with this Alteration, that, instead of Wheat, Peas, or the like Grain, you use Hemp-seed, Rape-seed, or Canary-seed; but, above all, Mustard-seed.

*Third Receipt.* — If you approve not of *Nux Vomica* (that is sold at the Druggists), you may boil the said Grains or Seeds in the Lees of Wine (the stronger the better), as you did in the running Water, and apply them to Use, as aforesaid, and it will work the same Effect; and so in Gin or Brandy, being esteemed more wholesome, having nothing of that poisonous Nature in it; but, in an Hour or two, the Fumes will be perfectly wrought off.

*Fourth Receipt.* — Instead of boiling the said Grains or Seeds in the Lees of Wine, you may steep them therein; but then you will require a longer time before they are sufficiently swoln, and fit for Use.

*Fifth Receipt.* — I knew an old Farmer, that lived by me, practised this Method to keep off Pigeons, Crows, Rooks, and such-like Fowls, from doing him Damage in his Fields. He took a Parcel of Pins, and crooked them; then fixed a white Pea to each Pin, in such a manner, that the

the Pigeon, Rook, or Crow, could not perceive the Point. When this was done, he tied each Pin's Head to a strong Thread, and fastened that in the Ground to a Stick; then, when he had taken some Rooks, he would pull them Limb from Limb, after killing them, and scatter the Pieces about the Field, which became such a Terror to the rest, that he suffered little Damage from Field Fowls.

*Sixth Receipt.* ——— Or, instead of *Nux Vomica*, or Lees of Wine, you may infuse the said Grains or Seeds in the Juice of Hemlock; mix therein the Seeds of Henbane and Poppy, or either of them. These must stand two or three Days infusing, before they are fit to strew on the Ground, for the Use as aforesaid. To these I might add other destructive Receipts; but enough of this at present; and, therefore, I shall hasten to enlarge further on the Damage of Pigeons.

*How many Chelturne Farmers think it excellent Husbandry to mow or feed a Clover-crop two Years, and then give the same Land one Ploughing and Harrow in Wheat, that in this Form often suffers by Pigeons.* ——— In our Chelturne Country of Hertfordshire, it is a common Practice with many of us, to let some of our inclosed Fields lie under Clover-crops two Years together, for our greater Conveniency; and, if we manure the second Year's Clover-crop with Coal-ashes, Soot, or Dung, we then give the same Ground, in the Month of *September*, only one Ploughing and Harrow for Wheat, without any further Application of any Manure. But the best way of dressing such new-sown Wheat (if the same Ground was not manured in the last Summer) is to fold it; for, by this, the Wheat is trod in by the Sheep, and thus preserved in the best manner from the devouring Pigeons: Yet, even here, they will come  
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in for their Share. But as but Part of the Ground can be folded on, the rest is either dressed by Dung, laid on the Surface as soon as the Wheat is sown, or else footed in the Spring Season; and either way, for the most part, produces the biggest of Crops, except when Flocks of Pigeons have their full Access at Pleasure to feed on the new-sown Wheat, that by this Piece of Husbandry lies on the Surface, and so exposed to these Fowls; that, when they can feed here undisturbed, they generally eat so much of the Seed, as causes the Husbandman to enjoy a thin Crop at Harvest, and a little Profit the rest of the Year; which Article; among many others, shews the Excellency of the Drill-plough, that lays in the Wheat-feed in the exactest Manner of Depth and Breadth, and, at the same time, secures it from the nice Search and Find of the laborious Pigeon. This Pigeon-Mischief, I, and Thousands more, have Reason to complain of, from the great Flocks that Gentlemen keep: Yet these do not so much provoke us, as the many House-Pigeons, kept by inferior Persons; of which I shall take Notice as follows; *viz.*

*How Wheat-feed only barrowed into the Ground on a Clover-lay, is sometimes very much damaged by House-Pigeons, kept by inferior Persons.* — Although the Farmer's Damage is sometimes very great by the Flocks of breeding hungry Dove-Pigeons, kept by Landlords, or their Tenants, yet we do not so much regret our Loss by them, as we do by those House-Pigeons kept by inferior Persons. I knew a Hedger and Ditcher keep about forty Pair of these House-Pigeons, in a Part of his Cottage, which was surrounded with many brave, large, inclosed Fields of good Land, where they got their Living almost all the Year, especially in Seed-time and Harvest; for then they work'd in

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these,

these, their chief breeding Seasons, with the utmost Diligence, on the new-sown Seeds, and on the Ears of ripe Corn : But here we suffer in a great Degree, when Wheat, Barley, or Oat, by the Greatness of their Bulk, fall down, and are laid before Harvest ; for, by this means, the Grain lying in a flat Condition, they have an easy Access to their Food, and devour great Quantities of it in a little Time : And the same, when Stocks of Wheat stand in distant Fields, where we are obliged sometimes, through the Wetness of the Weather, to let them stand here for three Weeks before we can house them ; and then the Pigeons plunder us with a Witness, by feeding on the Corns of Wheat as they stand in Sheaves. I likewise knew another, that was a Chair-maker, who rented a House and large Orchard for five Pounds a Year, keep forty Pair of House-Pigeons, that did the Country about him a great deal of Damage ; as I (for one) have just Reason to say. But this is only Part of a Farmer's Sufferings ; we have our Wood-stealers by Day and by Night, that pull Stakes, and other Wood, from out of our Hedges, for Firing, and other Uses, and thereby leave behind them such Gaps, as sometime let a Neighbour's Cattle into a Field, and then Pounding and Reparation-money generally ensues, to the Amount perhaps of several Pounds. At other times, in our inclosed Fields, that lie at some Distance from our Houses, there are some that take the Opportunity, in the Night-time, to feed their Horses, &c. in other Mens Grounds, while the Farmer and his Men are asleep ; and so in Harvest-time, while our Shocks of Wheat are standing in the Fields to dry and harden their Kernels, there are Night Pilferers, who take a little from every Sheaf, to prevent the Farmer's missing any, and thus carry off great Quantities,

well knowing, that the last Day's hard Work lays Master and Men in a profound Sleep, and thereby secures these sort of Thieves from the Danger of being discovered and apprehended. These, our Fruits, and many other valuable Goods, we Farmers are expose to the Loss of ; and the more, as some of the poorer Sort, Men, Women, and Children, think themselves screened from the Penalty of the Law ; because, if we punish the Man or the Woman with a Gaol and Prosecution, the next Word is, The Parish must maintain our Family. And thus they are encouraged to go on committing their Rapine every Year, till they break some of the weaker Tenants ; as I have known done ; and which I cannot think of without a deep Concern, as being very sensible of the hard Labour, early and late Watchings, and the great and certain Expences that attend a Farmer's uncertain Profits in his Crops of Corn, his Grass, his Cattle, his Fruits, his Servants, and many more Incidents that he is constantly liable to get or lose by : And yet to have his Goods stolen oftentimes, even by those he employs, or helps to maintain by a Parish Rate, is not only hard to the Pocket, but extreme grievous to the Mind : Wherefore, as Landlords of Farms value prompt Payments of their Rents, and would have their Land improved, I humbly recommend to their Consideration these Tenant-Hardships, and particularly to the Consideration of those who sit at the Helm of the Nation's Affairs, that they would make some good and wholesome Laws in Favour of Tenants, to the utter Discouragement of Pilferers, either Men, Women, or Children : I mention Children, because I have often known these to be made an Handle of by their wicked Parents, who steal where they themselves dare not ; believing, that, if they are caught in a thieving,



Act, their infant Age protects them against a Prosecution ; and so are made to become a sort of Jackcalls, or Providers of Prey, to their Fathers and Mothers, and the rest of their Family. And thus, indeed, a Succession of Thieves are intailed and increased on the Country ; and which, very probably, will hereafter be of the last ill Consequence to it, if not prevented in Time. Which leads me to observe further, that there is a fundamental Tendency to this Wickedness, and to Profaneness and Immorality in general, reigning in many Parishes, through the Neglect of Divine Worship being performed Morning and Afternoon therein ; which, in my several Years Travels, I have observed, with a grievous Heart, to see Church Doors shut up on a *Sunday*, where there was no resident Minister, that occasioned only one Service to be done on the Sabbath Day. This I was told, in one Parish, prevented several of their Women going to Church, because in a Morning they staid at Home to dress Dinner ; and, in the Afternoon, because the Minister officiated in another Parish : Farmers Children, and Servants, are also, by this means, tempted to seek out an Opportunity to play, and run into the Commission of those Evils, which, by Custom, may prove their Ruin, for want of Opportunities to spend their Time better at Church, both in the Morning and Afternoon, on Sabbath Days. This is a Matter of great Importance, and calls for a particular Regard ; for, as Farmers are a very numerous People, and employ the most Servants of all others, if these are corrupted in their Manners, they will consequently become Spreaders of Vice, a Torment to their Masters, and too often Helpers to their Ruin.

C H A P. XX.

*Of the Improvement of Estates.*

**H**OW a Tenant, by his Ill-husbandry, did a great deal of Damage to a Lady's large Farm; and the Method she took to repair the same. — But, first, I shall insert the Copy of the Lady's Letter sent to me for this Purpose; which is as followeth:

S I R,

May 19th, 1744.

**H**AVING read your Books of Improvements, and I having a Country Seat, that I want to have improved, I should be glad to have your Advice. So, if your Convenience could allow you to come to *London* some time next Week, it would be a Favour done me. So you'll please to inquire for the Countess of ——— in ——— street, in *St. James's* ———, *London*. Which is all,

*From your Friend.*

I waited on this Lady accordingly; when she told me how her Tenant had abused her Farm, and obliged her to take it into her Hands; and that, for repairing and improving it, she was fully resolved to act by my Directions. To this Purpose, I proposed to her, in the first Place, that it was perfectly necessary for her to have a Ploughman that could hold the Drill, or any other Plough, could sow any manner of Seeds, mow, reap, plash Hedges, suckle House-Lambs, and do most, or all other Business belonging to Farming. To which she answer'd, she believed what I said to be right; but that all this would not answer her Purpose, unless the Ploughman could write, and cast Accounts; forasmuch as he must be the

the chief Manager of the Farm, be accountable for the Receipts and Issues thereof, and, in her Absence, write Letters to her of his Proceedings. But, as it happened, Visitors came in; and I was forced to withdraw, before I had time to acquaint her Ladyship with farther Particulars on this Subject; which to supply, I wrote her the Copy of the following Letter.

*Little Gaddesden, 27th of May 1744.*

M A D A M,

**Y**esterday I heard of a Ploughman, that is well-skilled in holding our *Hertfordshire* Ploughs, in Sowing, Mowing, Reaping; and can perform that useful Branch of Husbandry, which your Ladyship so particularly insisted on, the Planting and Plashing of Hedges; can write, and understands Figures well; but is not acquainted with the Drill-plough, Horse-break, and some other Instruments, as being what he never saw: Nor can I expect to meet with one that is; because these two Machines are not yet known in that Part of the Country he lives in; nor, indeed, but in very few Parts besides: For a new Invention in Husbandry, though of ever so great Importance to a Farmer's Interest, is sure to make its Way with the utmost Slowness; for these Sort of Men, more than any other, are very jealous of new Improvements in Husbandry, lest they be led into Mistakes, to their Prejudice; knowing, that a Miscarriage may hurt a weak Pocket: Therefore it is almost a general Rule among Tenants, to forbear trying any new Project in the Farming Way, till its Benefits appear so glaring, that there is no Room left to doubt of its Usefulness: And therefore, in such a Case, they wait for a Proof, by the Trials of rich Persons; for, say they, if a new Invention should miscarry in

in their Hands, it will not hurt them, when it will us. But, to supply this Defect in this Ploughman, if you think fit to hire him when you see him, your Ladyship, and all Persons that employ me in these Affairs, have this Opportunity; *viz.* to have them qualified to hold the Drill-plough, Horse-break, and other new and most valuable Instruments, in three Days time; which is a Service that none ought to grudge paying a Trifle extraordinary for: Though on this account I charge nothing for the bare learning such a Ploughman to use these profitable Implements, nor for teaching him the Art of suckling House-Lambs, and other Matters that he may not know before, and yet be justly deemed a good Ploughman and Manager in the old Husbandry: And, when such a Ploughman is made a Master of this Knowledge, how serviceable must he be to a Person he is hired to serve; particularly to one in your Ladyship's Case, whose Seat lying remote from *London*, your People must consequently be the more ignorant, even of the best Management in the common Way of Farming! Therefore, to look into the Advantages *de futuro*, I have to remark, that, by your having such a Ploughman so qualified, your Estate may not only be vastly improved by his Skill, but his Example will teach others of your Servants to do the same Work; so that, if a Dislike in you, or him, should happen, and he is discharged from your Service, you will not be left at a Nonplus, but be able to carry on the Husbandry Business in as great Perfection as before. Hence I am led to observe, that a little extraordinary Wages given to such a well-qualified Ploughman is so far from being lost, that it is very likely to be the best Money that can be laid out in such an Undertaking as yours: For Encouragement, in this Case, sometimes does Wonders; it may prevent his hindering,

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as much as lies in him, to learn others his Art by his Example: On the contrary, in hopes of enjoying, a long time, the Place of such a generous Master or Mistress, he freely goes on, without Jealousy of being treated as a Tool to learn others, and then be turned off. It may engage him to the greater Diligence and Faithfulness: And, in short, by thus encouraging the chief and best Servant, he will be tempted not only to use his best Endeavours to promote your Interest, by his own Care and Labour; but, by acting the Supervisor, will see it done by all others under him. By all which, I don't in the least doubt, but that your large Farm, though much impaired at present, will be soon brought into a most fertile Condition; and the sooner, as you say it has Variety of Soils, is mostly inclosed, and lies near the Sea-side; which Conveniency, in many Places, furnishes Ore, or Sea-weed, Shells, Sand, or Mud; all or any of which is some of the best of Dressings for the Improvement of any Sort of Land whatsoever, that stands in need of Dressing. In short, as your Ladyship is well known to be Mistress of a superior Genius to many of your Sex, and is resolved to make use of these new Instruments in a Country where they are Strangers to them, you will certainly reap a very great Profit, by thus being the first, in your Parts, that will hereby enjoy Crops of Grain, and other Vegetables, every Year in the same Fields, free of the usual Loss of Time in fallowing Seasons; and with the least Charge of Dressing, and Mens Labour; as are the sincere Wishes of, M A D A M,

*Your Ladyship's most obedient humble Servant,*  
Wm. Ellis.

To which her Ladyship sent me the following Answer:

*S I R,*

S I R, London, May the 31st, 1744.

I Had yours Yesterday, and am glad to find you have heard of a Man that seems to please you: And, as I am not in a Hurry, and would have him go down along with me, which won't be till the first Week of *August*; so you will have Time to inform him in Things that you find him wanting; and what Ploughs will be proper to be sent by Sea to—— I shall be ready to take your Advice: And ever am, S I R,

*Your assured Friend.*

P. S. I shall go out of Town next Week to my House at —— near —— in *Middlesex*: So if you direct for me there, your Letters will come safe.

This Lady's Conduct, as well as that of a few Gentlemen in *Britain* and *Ireland*, and some beyond the Seas, may justly upbraid most of our *English* Gentry, Owners of Estates; who, though many of them keep plough'd Lands in their own Hands, yet will not endeavour to improve them by the new-invented Drill-plough, Horse-break, and other Instruments; notwithstanding it is beyond Contradiction, that their proper Soils may be vastly improved by them; and, at the same time, become a good Example, for the same Purpose; to their Tenants: Which leads me to be somewhat particular in my Account (by way of Example for others to imitate) of this Lady's managing her Estate, &c.

*How a Widow Lady improved her Estate. ———*

This middle-aged Widow Lady I have just Reason to write of, to publish her excellent Conduct in the Management and Improvement of her Estate; hoping her Example may become prevalent for

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others,

others, even many of both Sexes, to imitate, for their great Benefit, as well as for that of the Nation in general. I never met with any Person more intent on the Improvement of an Estate, than this Lady was on her's; for when I first waited on her at *London*, to receive her Orders about it, she told me, by the Recommendation of Sir ——— Baronet, she had such a Confidence in my Sincerity and Ability to advise her, that she said she would leave to my Choice what Things I thought proper to buy, and send her, for improving that Part of her Estate which she kept in her own Hands. This full Commission induced me to do the best I could to serve her Ladyship's Interest: And, accordingly, in the first place, I helped her to one of the most complete Ploughmen in our Parts; who met her on the Road, in her Coach and six Horses, in *August* 1744. for waiting on her to her Seat in the North. After this, as soon as I could, I put a Three-wheel Drill-plough, and a Horse-break, six tame Pheasants, six *Hertfordshire* white Dunghil-fowls, and other Things, on board a Ship in the River *Thames*, for their being carried and conveyed to her Ladyship: And, when I can meet with some Turkey-pouts to my Mind, of the *Virginia* great Breed, that, at their full Growth, Guts and Feathers included, weigh forty Pounds each Turkey, I shall send them to her, with some other Curiosities, as Opportunity offers: For this Lady takes great Delight, and indeed makes it Part of her Business, to pry into, and inform her Judgment of, the latest and best Practice of Husbandry; and therefore very much encourages and receives Advice on this Account; buys Books, diligently studies, and readily disburses her Money, for obtaining that great End of getting much in little; or, in plainer Words, making the most of that Part of her Estate she holds in her own Hands; which

which she has already vastly improved, by Plantations of Trees, Shrubs, and Hedges, &c. An Improvement that, in some Sort of Ground, exceeds all others; for where Corn, and other Vegetables, will not prosper, proper Kinds of Trees will: For which Reason, before any Persons attempt to make large Plantations of Trees, they ought, in the first place, well to consider what Trees will best suit their Soil; for, on a right Judgment of this, depends their future Prosperity: And this Lady has so wisely consulted this chief Article, that her great Numbers of young Trees are like to produce a vast Profit, against her only Son arrives at a Maturity of Age, when he may think fit, or may have Occasion, to sell them, and turn them into Money. This is acting the good Guardian Mother, in a most exalted Degree of Husbandry; for, by this means, her minor Son (incapable as he is) loseth no Time in the Improvement of his hereditary Estate, because she thus does it for him; and for which Posterity, after her and him, very probably will have Reason to bless her Memory. It is this, and her other noble Oeconomy, that enables her to live great, both at home and abroad: At her Seat, because it is a very convenient one, where she has a full Number of Servants and Horses, has a complete Dairy, makes her Cows suckle Calves, and her Ewes House-Lambs; which, by a close Inspection into their Management, causes this Part of her Good-housewifry to return considerable Profit: And this, partly by reason she lives within three Miles of a large City, that gives her the best Opportunity to sell her Butter, her Calves, and her House-fatted Lambs, at a good Price; and much better, for her being the first Person, in her Part of the Country, that ever attempted suckling House-Lambs for a common Market: And for which Art, she is, in a great measure, beholden to



my Monthly Books of Directions, that she strictly observed; besides consulting me, in Person, at her House; where I had the Honour to eat at her Table with her. But, for a farther Assurance of performing this new suckling Husbandry, I provided her a Ploughman that understood it; having lived in a Farm where this Business was carried on all the Year for a *London* Market, as well as plashing Hedges, sowing, mowing, hoeing, and doing many other Works, in a far better Manner than most others; for this Servant, though a young Man, has been hired to, and served some of the most acute and opulent Farmers in our Country: And I must do her Ladyship this Justice, as to say, she is so well acquainted with the Value of such a chief Servant, that she did not grudge to give him even the Wages he asked. On this Account, Gentlemen, Ladies, and others, that think fit to employ me to help them to Ploughmen and Dairy-maid Servants, have the greatest Chance to be provided with those that best understand their Business; as I live in a County most famed for good Ploughmen; and on the Edge of *Alisbury* Vale, where some of the most complete Dairy-maids are in Service, and whose Characters I am most likely to know. This Lady also kills her own Beef, Mutton, and Veal; and keeps some of the best Sort of Dunghil Hens and Cocks: For the Care of furnishing herself with the most profitable Things of a Farm descended so low, as to injoin me to send her some of our best Sort of Dunghil Fowls: Ours, being all of a snow-white Colour, of a good Size, lay large thin-shell'd Eggs, that cause them to be hatch'd the sooner; breed commonly three times in a Summer; which is a particular beneficial Quality to us Farmers, when we have Offal-corn in Plenty, for feeding and bringing-up great Numbers of such fine white-legg'd Chickens, that sell for the best

Prices

Prices at our Country Markets, and are careful good Nurses of them. But more of these, when I write particularly on Dunghil Fowls, in some of my future Works : And now, as the better of these Fowls are as cheaply kept as a worser Sort, it is great Imprudence in all those who keep a worser Sort in Neglect of a better. But before I quit this Subject of employing my Pen in the Praise of our *Hertfordshire* Breed of Dunghil Fowls, I think it not amiss to observe, that it is not of the least Consequence for all Persons, who keep a Family in the Country, to take care of getting one or more Cocks that are good Crowers, because on this, in a great Degree, depends the early rising of Servants : Many of these regard the Crowing of a Cock so much, that they are the greatest Part of the Year governed by it on this Account ; and where a Clock is not to be heard, such Crowing supplies it : And I think I may say, I have a white Breed of Dunghil Cocks, that not only crow aloud, but musical ; if I may make use of the old Woman's Term where I first bought them. And this deserves the more Notice, since some Cocks Crows are so harsh and grating to the Ears, as makes it unpleasant to be within the Hearing of them.

This Lady is likewise a most curious Manager in the Brewing of her Malt Liquors : She takes care, in the first place, to buy the best of Malt, as well knowing, without this, there is no such thing as having right good Ale and Beer. But the Choice of Malt is a Secret that few understand ; and, to prevent their being imposed on in this material Article, I must refer my Reader to *The London and Country Brewer* ; a Book that no Family in the King's Dominions ought to be without, because by this Art Malt Liquors may be made to exceed those commonly brewed, as Gold exceeds

Silver,

Silver, and yet brewed for the same Charge the worser Sort costs. I am sensible there be many Gentlemen, and others, who would be glad to be informed of these two valuable Articles, because such brewed Ales and Beers are not only profitable, but very pleasant and healthful, as being the chief and most natural Liquor of all others to a *British* Constitution. Now those Persons that have not this Book, may be informed of all this from me, provided their Letters are franked, or Postage paid for them, to my House that lies thirty Miles from *London*; and I am paid for writing an Answer, for which very little is expected; for it is not reasonable I should do this for just nothing.

The next Thing that I am to praise this worthy Lady for, is, for her Skill and Diligence in making *English* Wines; of which Art she is a great Mistress. I heard her in particular say, that a Gooseberry Wine rightly made, and kept to a due Age, is one of our best *British* Sorts that can be made; which, and some others, she is so much in Love with, that she prefers them to several foreign Sorts. But I observed, that her Ladyship was not acquainted with a Black and Honey Cherry Wine; although, in my humble Opinion, these two, and the red and white Elder, exceed all others. The Reason of this, I presume, was, because in the Country, where this Lady lives, they have few or no Standard Cherry-trees: But, if they knew the Value of them, I don't doubt I should not be long without several Commissions, to send many of them by Sea that are to have a long Carriage, and others nearer, by a Wheel carriage, for the sake of their delicious Fruit at Table, and making a Wine so nearly counterfeiting Claret, that I defy a nice Palate to distinguish between them, if made according to a particular Receipt I could give, in which some foreign Wine must be used. This

Black

Black Cherry Wine has the most cordial Property belonging to it of all our Tree Fruits ; for, if a large Glass of it is drank, it presently is felt at the Heart ; and undoubtedly, by the Accounts of Naturalists, it is as wholesome, as it is reviving and pleasant. In 1744. we had such Plenty of Black and Honey Cherries, that I sold my Kerroons at Nine-pence Halfpeny a dozen Pounds, and common Black for Five-pence ; at last the Price fell to Four-pence Halfpeny a Dozen, and then Thousands of Dozens were left ungathered, and fell to the Ground, where Hogs, Dogs, and Fowls, met with a Repast : A Pity, indeed, that such noble Fruit should be no more esteemed ! I am apt to believe it is for want of knowing its true Nature in several Shapes of its Virtue. The Black Cherry imitates Claret, as much as the Wine of the Honey Cherry does Sack or Canary, both in Colour and Taste. If this be true (as certain it is), few, I should think, would be without these two Wines in their Cellar, that can afford to make them. Twenty dozen Pounds of these would make a Barrel, or six-and-thirty Gallons of noble rich Wine, with the Help of Sugar or Raisins, &c. the Expence of which may be the better borne, since these Cherries, when gathered in their full Ripeness, want not so much of these Ingredients as Currans, Damsons, and some other Sorts of *English* Fruits: Not that she allows these *British* Liquors to hinder her the Use of foreign Wines ; for she, by the studious and diligent Management of her domestic Affairs, improves her certain plentiful yearly Income so well, that she can afford to buy these better than many other Persons of Quality, and of which she is a good Judge ; for, after she has bought a right Sort, she well knows there must be a due Regard had afterwards to their Preservation in the Cellar or Vault,

or

or else the best of Wines may lose their prime Virtue. I had the Favour to tast a palish-red Wine at her Ladyship's Country-house in *Middlesex*, that she told me was three Years old, made at the *Cape of Good Hope* in *Africa*, and so delicious, that I could not forbear saying, It was more fit to be drank as a Dram than as a Glass of Wine: Besides, as this Lady's Seat is situated near the Sea-side, she enjoys the best Opportunity of buying foreign Wines, and good, at the cheapest Rates. These, and many more Acts of Housewifry, are practised by this Lady, who commonly, once in two or three Years, leads Part of her Life in *London*, and near it, in so magnificent a manner, that, as she was pleased to observe to me over a Dish of Tea, several of the Town and other Ladies, whose Estates lie much more Southward than her's does, have express'd themselves in a sort of Wonder; saying, Sure, Madam, you must have an Estate of twenty thousand Pounds a Year, to make such a Figure as you do! To which her Ladyship's Answer usually is, That she has not an extraordinary great Estate, and yet may be called a plentiful one: But she augments it when she is at home in her Country, by practising the Husbandry-part so well; that she lives handsomely here, and yet lays by considerable Sums out of her Income, that she had no Occasion to expend; and therefore was the better able to live in the Order they see her when in *London*. This Answer to some of her Sex seemed a Mystery; Strangers to what may be called Country Housewifry! And, to be better informed of this Matter, they ask her and say, Pray, Madam, what is this Sort of Husbandry that you practise? She tells them, It is looking after my Land, and to see it well plowed and sowed in due time; have my Corn and Hay cut down and housed in

right Order ; my Fruit put to the best Uses ; my Dairy carried on in right Order ; my Beef, Sheep, Calves, and Lambs, fatted with Care and Art ; my Cattle bought in, and sold out, by an understanding Person ; my Goods made the most of ; and my Servants (that I spare no Cost to get the best Sort of) employed with the least Loss of Time. This is only Part of this excellent Lady's Character, which ought to become a Mirror of Example for many others to follow and practise : Then there would not be so many Estates lessened and sold ; Tradesmen made to lose their Debts ; and Breaches happen in Matrimony, as so frequently now-a-days do. This reminds me of what I heard her Ladyship say, That as she was looking out of her Window one Morning in *London*, she saw a Couple of Fellows in the Street hankering about a particular House : This moved her Curiosity to ask her Footman what those Fellows wanted there. He answered, That these were many of the *English* Gentry's Visitors, that attended on their Levee, and coming out of Doors : That is to say, Madam, they are Bailiffs, that want to arrest a Person that is now in that House, for Debt, as soon as they can catch him out of it. And no wonder that this is the Case of many ; for Good-husbandry and Frugality are quite out of Fashion, and he that goes about to set up for the Practice of it, must mortify every thing about him ; for 'tis the Mode to live high, to spend more than we get, to neglect Trade, contemn Care and Concern, and go on without Forecast, or without Consideration ; and, in Consequence, 'tis the Mode to go on to Extremity, to break, become Bankrupts, and Beggars. I am afraid this is but too just an Observation, that scarce one Family in ten keeps strictly within the Compass of its Income : For, besides the present

expensive manner of Living, the Generality of Mankind have contracted such an unusual Indolence, that People, eagerly pursuing the Pleasures and Novelties of the times, leave their Estates and Business of all Kinds at Sixes and Sevens, or at best to the Management of a few heedless mercenary Servants, that mostly, either through Avarice or Negligence, betray or deceive them. But this Lady is not one of that Stamp: She delights in the Pen, employing it in keeping exact Accounts of her Receipts and Issues to come at a Balance; and therefore obliged me to hire a Ploughman that could write and figure well; which accordingly I did, and to whom, on his first Demand, she gave 15 *l.* a Year Wages, tho' our common Ploughmen have but half the Money: So much Difference there is between a topping Ploughman, and an inferior one. But further; There is, says one, much to be said to prove the great Town a Forge of Vanity, a Nursery of Vice, a Snare to the Young, a Curse to the Old, and a perpetual Spring of new Temptations. Some (says he) find a mighty Satisfaction from the Play-house, as thinking it the best way of passing an idle Hour or two: But here is such a Confusion and Jargon among them, and such a Huddle of Men and Things jumbled together, that, unless you can abstract the Good from the Bad, and withal drain Observations and Diversions from them both, I cannot tell what kind of Pleasure or Satisfaction you can propose from thence. 'Tis the very same in all the rest of our pretended Diversions; *viz.* Horse-races, Cock-pits, Tennis-courts, Balls, Assemblées, and Musical Entertainments, &c. Though the Recreations in themselves may most of them be innocent and harmless enough, yet they are generally so vitiated and corrupted, and the Pleasure that they pretend to, is so interwoven with Danger, as well as Vexation

Vexation of Spirit, that I defy the greatest Master of the Town to make it appear, that there is not more Pain and Disappointment, than there is real Pleasure or Satisfaction, attending upon the best of them. But the Diversions of the Country are noble, manly, and generous; and do not cloy or satiate their Professors; but are still improving upon them, and are, every Day, growing more grateful and delightful: They are not spent as those of the Town are; but still, the more they are enjoy'd, the more they please and gratify the Enjoyers. Moreover, to consider the Expence of the Pleasures of *London*, and those of the Country, the latter are all free and open, and derived, as it were, from the general Grant of Nature; the former are mercenary, and not to be come at, without a certain unavoidable Charge and Danger: Besides, all the Pleasures of this Town may be run through in the narrow Compass of two or three short Days; and, when that's done, you do but run the same foolish Round, tread the same Stage over and over again: And what can be more ungrateful to an ingenious Man, than to suffer his Senses to be perpetually grated and imposed upon, by the dull Repetition of the same Thing?

I therefore hereby give Notice to all Gentlemen, Ladies, and others, that, on a proper Order, I will furnish them with Ploughmen, or other Men and Boy Servants, usually employed in Husbandry Affairs; as also Grooms, Dairy and other Maid-servants; and buy for them Saddle, Coach and Cart-horses, as I live near *Dunstable*, *Leighton*, and *Alesbury*, where the best of these Sorts of Horses are brought several times a Year to be sold; as also Bulls, Cows, Sheep; the large *Leicestershire*, or the small foreign Breed of Hogs; Setting-Dogs, Gun-Dogs and Pointers, broke by the best Hands in our sporting Country; Mastiffs



and Shepherds Dogs; tame Rabbits of several Sorts, and *Guiney* Pigs; young Squirrels and Dormice, that are very plenty with us; tame Pheasants of the common or white Sort, from Half-a-crown apiece to seven Shillings and Six-pence, according to their Age; *Guiney* Hens, white Peacocks, *Muscovy* and others of the best *English* Sort of Ducks; the large *Virginia* Turkey, some of which have weighed forty Pounds, Feathers and Guts included; the true *Hertfordshire* Breed of white Dunghil Cocks and Hens, that lay large Eggs with thin Shells, and have commonly two or three Broods of Chickens in a Year; divers Sorts of Wheat-feed, proper for particular Soils and Climates; rath-ripe, sprat, and common Barley-feed; Oats of different Kinds; Tick and common Horsebeans; various Sorts of Rouncivals, and smaller Peas, for Field or Garden Uses; Turnep and artificial Grass-seeds, and, the most excellent of all natural and artificial Grass-seeds, that called the *Lady-finger* and *St. Timothy* Grass-seeds; Fruit and Timber young Trees, and their Sets or Seeds; Hedge-wood Sets or Seeds; and all manner of Implements of Husbandry: So that Persons may have the Three-wheel Drill-plough and Horsebreak, Two or One-wheel common Plough, the Swing and Foot-plough without Wheels, the Marsh or Bog-plough, the best and lightest sort of Plough for cutting Water through; the profitable Chaff-cutting Engine; several Sorts of Instruments for improving Hop-grounds; with most or all Sorts of Utensils usually employed in Corn or Grass Dairy-Farms; Furze or Whin-seeds, from our Commons; Beech-mast or Seeds, or its Sets, at Eighteen-pence an Hundred; and Kerron young Cherry-trees, of which particular Sort (being the best of black Cherries) I have a large Nursery, and sell them

them at one Shilling apiece ; and which no Person should be without, for its valuable Quantities, that has a convenient Place for their Growth.

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## CHAP. XXI.

*The bad Husbandry of the Scotch Farmer display'd, in the Copy of the following Letter.*

S I R, D — — s, 11th August 1744.

**B**EING Proprietor of some Lands, and regretting the Ill-conduct of my Countrymen, I purchased several Books of Husbandry ; that of the Society of *Edinburgh*, and yours, &c. Both of them might be compendised ; and it were to be wished, that (as yours costs us about thirty Shillings at this Distance) you had been more plain, and not reserved so many Secrets, as the Method of preserving Peas, &c. from the Slug, Fly, and other Insects. However, as you have written more plain than any other, I esteem you, and wish my Countrymen would follow your Directions : But, as I despair of that in haste, I wish you could fall on a Way of sending some of the good Farmers to us ; rather, the Servants you send to Gentlemen. No doubt, this will seem a very whimsical, ridiculous Proposal to you ; and, I am sensible, there are no small Difficulties lie in the Way : Yet, if Particulars were known, I am satisfied we should have great Numbers speedily ; and all of them might make rich speedily with Ease ; which is the Reason, that (as I have expended a deal of Money on Improvements) I will bestow a few Pence more for the Pleasure of corresponding with Mr. *Ellis* ; and hope he will excuse the Trouble of hearing the bad Management of others.

Though

Though we have rich Grounds here, capable of bearing any Grain, all is on a wrong Footing; the ordinary Farmers have the Fields all open, take four Crops off the upper driest Parts of their Grounds, of poor, small, grey-Oats, not worth plowing for them, letting it lie only four Years Lee, without sowing any Grass-seeds: The Surface is scarce covered, till they give it a slight Folding, and then plow it four Years more. They only scratch the Surface five or six Inches deep; and are afraid of turning up fresh Mould, and will not plow a rich moist Ground, but call it a cold, sour, barren Ground. They fallow none; but, through Laziness, lay their Dung on the Piece next the House; which they call Croft; and take a Crop of Barley first; then one or two Crops of Oats; then dung again with Barley, Oats, &c. and so has been for Hundreds of Years. They sow no Peas nor Wheat. Thus their Crofts are full of Weeds, and a dry Summer breaks Numbers of them. The Masters, observing this, turned all their Grounds into large Inclosures of some Miles for feeding Cattle: A most precarious Trade! But, as it is better than the former, it is followed to such a Pitch, that we have not Food amongst ourselves: Our Wheat is brought to us weekly thirty Miles from the East; and is carried also four-and-twenty or thirty Miles still farther to the West, to *Kilcoudbright*, &c. Our very Oatmeal comes weekly to our Market from the *English* Borders at twenty Miles Distance: And, though we have large Quantities of Milk, yet our Markets are supplied weekly with Butter from the *English* Side; and send many hundred Pounds for salt Butter and Cheese to your Sea Coasts. In short, to our Scandal, we had all starved the last Dearth, but that we subscribed, and sent over, above three thousand Pounds to the *English* Side, for Support of our Farmers, and the

Poor

Poor at this one Town. A great Number of the *English* Farmers, observing this, are come in on our Borders, and are making rich fast. A poor industrious Fellow, of, I believe, not sixty or seventy Pounds Stock, was laughed at, for taking a Piece of Ground called too dear ; but he improved it so, that, in a few Years, he sub-set less than the Half of it ; and now his Family sit Rent-free on the rest. One from *Bristol*, some Years ago, came over to *Galloway*, and made a great deal of Money ; and many others. In short, they will meet with great Encouragement from the Gentlemen here ; and, particularly, it would be a Pleasure to me, who have nine hundred *English* Statute-acres lying together, all Meadow and Arable : It is open to the South and West, and covered from the North by Hills ; the upper Parts of it are all a good Mould, mixed with a Clay four or five Feet deep ; no Stones, save small loose Tumblers, which are all picked off to make Fences : The Meadow is a Foot of fine Mould, above a fine rich Clay and Moss, without Sand, from three to fifteen Feet deep ; and yields from fifteen to twenty Horse-loads of fine Hay off a Day's Labour, without any coarse Spreet : Is just so situate, as never to carry off the Hay by Floods ; and, if all the Meadows were saved, nine hundred Horse-loads might be cut yearly, at sixteen Stone *per* Load of Meadow Hay, besides Clover. The Bogs are rising Grounds, betwixt the Meadow and higher Grounds ; a fine Turf, one Foot ; then Clay (without Sand) ; and Marl, two, three, or four Feet, and, in some Places, five or six ; which could be easily carried off : And, if the upper Turf were laid down, it would be Meadow all behind. We have a Privilege of casting as many Peats as we please in a neighbour Moss, on the Marsh, without any Restriction, but paying a small Moss-due.

due. Vessels of thirty or forty Tons come within four Miles of it; and if one dine in *Cockermouth* or *Whitehaven*, they may sup in the Farm. Several Butchers carry home fat Sheep, &c. in Boats: Nay, these two or three Years past, a cunning Farmer from *Kent* has come stealing down here, and buys Wethers at Six and Six-pence, or seven Shillings; which, he says, he can sell, after a Year's Keeping, or less, at twenty Shillings, or a Guinea: Nay, we have Butchers all the Way from *Cbichester* hither: So you see there is Money to be made here. The Farm is ten Miles from this, and fourteen from *Kilcoudbright*, all good Coach-road. A good Farmer could sell all his Wheat and Peas to these two, cheaper than after fifty Miles Carriage; and Pork, which we have mostly all from the *English* Side. There are some light Parts in the Farm; but there is always Plenty of Marl, or rich Clay, within thirty or forty ——— of it, to lead to it; and has such a Command of Water, that the Half of it may be flooded all the Winter and Spring, and even in a dripping Summer. There are Plenty of Houses, and good Farm-ones; but as I know an *Englishman* would not like them, if any offer'd, I would build right ones. It is a pleasant Place, a good deal of Planting; and I am yearly planting more. Had I been bred in the Country, I would keep it all; but, having another Business, it lies out of my Way to manage it. I propose, therefore, to let it to three or four Farmers, each to be inclosed within himself; with Plenty of Water and Meadow, &c. If the Whole be taken together, I ask but four Shillings and Six-pence an Acre, in full of all Rent, Tythes, and public Dues; only some small Casualties, a few Hens and Chickens, or so. This for one Life; and I will yearly quarry, and build two or three hundred Poles of sufficient Stone-walls, five Feet

Feet high; the Farmer Leading the Stones, when quarried, and paying seven and a half *per Cent.* for the Quarrying and Bigging; and if the Farmer give an Acknowledgement at Entry, he shall have Power to sub-set; by which means he may live Rent-free himself in a few Years. If the Farm lay here, I could have thirty or forty Shillings or more each Acre, which is the usual Rent here; but being ten Miles off, I ask but little less than the tenth Part of the Rent. The red-headed Thistle is growing on the Hills, which have not been plowed of a long time, and the common Thistle over it all: Common red and white Clover with Thatches grows plentifully in all the Grofts: The Out-fields are thick-set with what they call *Bennert* (small Comfrey); and in *June*, at a Distance, the Fields look as if all covered with spilt Milk; which is from a Flower, for that reason called Milk-Grass (Lamb-Lettuce); for it has now lain six or seven Years Lee. If any young Man were willing to push, you could not do a better Service to him than let him know of this, I can assure him; or rather three or four of them, of good Encouragement, if they are honest. Principles are no Objection to me. Here is a Meeting-house for Churchmen. You will be a better Judge what Stock it will require, than I. Every thing sells dearer here than in your Markets, especially Pork; Peas, Beans and Potatoes, and even Butchers Meat, dearer than most Places of *England*. —I'll beg you'll excuse this long Scribble; and if any thing occur, favour me with a Line. You may observe, either in Print or otherwise, that there are cheap Farms in *Galloway*, or so; but I do not chuse to have my Name made use of in public, or any notice taken of my writing you. —We have Plenty of Coals and Fir-timber, with Lime from *Whitehaven*. I have sold a hundred and five Ash and Plane-trees to two Lords there, who are to cut

Y

them

them this Winter ; and, if I were to build a House, could have Fir Deals in Return. The Farmer may enter at *Martinmas*, *Candlemas*, or *Whitsuntide*, the 15th of May. The Meadows and Bogs are the richest of the Grounds ; but, having never been plowed, would answer well for Wheat or Lint. The Quarrying and building Walls costs me sixteen or eighteen Pence *per Pole*. Thus you have every thing huddled in, as it occurred to,

S I R,

*Your most obedient humble Servant ;*

Direct for me here. *though unknown.*

I will lett a larger or lesser Part off at a Side, for the same Rent ; for some dearer, as the Goodness is.

*The Author's Remarks on the Scotch Letter.*—

According to this ingenious Gentleman's Letter, it is plain, that a Person who understands the Farming Business, and is able to stock a Farm, and is willing to rent one in the South Part of *Scotland*, has here an extraordinary advantageous Opportunity to improve his Money ; an Opportunity, perhaps, that is not to be match'd in *England* : And now is the Time to make the best of it ; for the Knowledge and better Practice of Farming will certainly become more common than ever, in a few Years more : And when this Art is more known in *Scotland*, undoubtedly Farms will lett dearer than they do at present. Happy then is he, that soonest takes one of these rich-landed Farms, at so small a Rent as four Shillings and Six-pence an Acre ! Land that with us would, in some Places, lett for twenty Shillings an Acre, without the great Conveniency of Marl-pits, which afford the best of Dressing for light Land : And, what is extreme valuable in this Gentleman's Estate, most of his Ground is of a stiff Nature ; which would give a  
clever

clever Husbandman a fine Opportunity to get large Wheat and Bean Crops, where there was never any before: And every knowing Farmer is sensible of the great Value of fresh Ground, which here he may enjoy, not only because Wheat was never sown here before, but likewise because he may, by a skilful deep Ploughing, make that Earth turn and be uppermost to the Sun, that never was yet; and consequently thus enjoy a sort of Virgin Mould, to his great Profit. We commonly say in *Hertsfordshire*, It is a beneficial Opportunity, that a Man enjoys, when he takes a Farm, after a Landlord has occupy'd it, because it is supposed, that by his Ability of Pocket he had thoroughly dressed and manured the Land, and left it in good Heart; which often is the Case, and then the succeeding Tenant fares the better for it for several Years after. And I say also, that it sometimes happens to the Advantage of an ingenious Farmer that rents a Farm, next after an ignorant one has broke, and gone out of the same. Of this I could give Instances that at present subsist, within a few Miles of me; where two Farmers now live, who succeeded two ignorant ones, that plowed their Ground so shallow as not to go to the Bottom of the common Weed-roots. Therefore the Weeds oftentimes got the better of their Corn-crops, and help'd to break them, by having wretched poor Crops. Now when another Tenant came after one of these, that made Choice of a right sort of Plough, agreeable to the Nature of the Soil, and plowed the Ground, where it would admit of it, its due Depth, he then came by fresh Mould, that needed no Dressing for Years after; or, if he did dress it, the less would do: And thus he got as good Crops, as the former one did bad ones. The Case here seems the same: For, as this Gentleman observes, they plow it so shallow, that it seems a Scratching rather than a Ploughing, and



so harrow-in their Barley and Oats. But to such an Undertaking I know there is one of the most simple Objections made; an Objection that is merely childish; and that is,——Who would venture to go and live so far from home? Alas! what a sad Thing it would be to live among Strangers! says one to another.——Silly People! There are many of our *English*, that make as much a Rout about taking a Farm twenty Miles off their last Abode, nay, more, than some of greater Ability do of going an *East-India* Voyage. I happened once to be in a Room with a Gentlewoman Relation, who had just come home to *England*, after living, I think, seven Years at *Leghorn* in *Italy*; when another of her Kindred, being at the same time there, said—O Cousin, how could you venture so far?——To which ridiculous Question she wisely answered,——O Cousin, I thought it no more than a Journey to *York* by Land.——But the *Dutchman's* Opinion is still more pertinent to my Purpose: His Maxim is, That where he gets most Money, that Place is his Home—So that he is the same Man in his Mind, Abroad as at Home; in a Spicy Island at *East India*, as in *Holland*. But here is less Reason, nay, little or none, for an Objection against living so near *England* as this Farm is; for there is no Sea to cross to it; it is all Land-traveling; and if there be any Goods to be sent to, or wanted from *London*, a fair Wind of three Days blows a Ship from one Part to the other. To which I shall add the following Encouragement; That, if any Person will speedily go and take all or Part of this great Farm of nine hundred Acres of Land, he cannot do it at a better Time, because all Sorts of Grain seem now to be at the lowest Ebb of Price; Cattle the same, and every thing else relating to the Farming Business: So that half the Money, and less, would stock a Farm now, than would at another Time, when

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Corn, Cattle and other Things, sell much dearer ; So that there is no room to doubt, but a skilful Man would get Money apace in such good Ground, under so easy a Rent. And, if he is a single Man, he stands a rare Chance of making his Fortune here by Matrimony ; for in a Part where none knows so well how to manage Husbandry Affairs, he will be not a little respected ; and, as he lives in Reputation on his own Stock, he need not fear Proffers enough of rich Help-mates for his Choice of a right one (if he mistakes not) to be his Partner in Farming. A pretty many Years ago, I am credibly informed, a Servant Man went out of the Parish of *Great Gaddeſden* but into *Lincolnſhire* ; where when the People perceived he could get great Crops of Turneps by his Art in the open Field, they seemed amazed, for they had never seen such a Sight before. This and other skilful Practice made the Man be esteemed to a very high Degree ; and, according to the Story, he afterwards became a topping Farmer himself, by marrying a Widow, with a ready Stock, well placed in a large Farm : And here, it is said, he lived till he died.

And now, this is to give Notice to any Person that has a mind to try his Fortune this way, by employing his Money and Skill, in renting such a convenient, cheap Farm, that lies but a little Way in *Scotland*, where as good Wheat may grow as any in *England*, That if he will apply to me in Person, or by Letter (paying Postage to my House), he may be further informed of this valuable Opportunity, to become Tenant to a Gentleman that will assuredly give him extraordinary Encouragement.

## C H A P. XXII.

*Of Bees.*

**T**HE bad Success that attended Bees in 1743.—  
 This Summer 1743. though it might be justly called a dry one, yet was attended with so few Honey-dews, that most Bees got not Honey enough to subsist them all the Winter, which obliged many to feed them with Sugar just wetted with Small Beer (for our ignorant Niggards will not be persuaded Honey is the cheapest Food for this Purpose), from *Allballowtide* to the Middle of April 1744. and because this Spring Season lasted so long cold, that the Bees could not keep abroad to get Honey enough to live on; which Supplies of Food were given them at times when the Weather was open; for then they would descend from the upper Part of the Hive, and carry it up; for in frosty Weather they kept close, and would not stir to receive any thing that was given them; yet for all such right Feeding, as they falsely call it, I know an old Bee-master lost this Year three Hives out of seven; and so many others have shared the same Loss by Famishing, for want of enough Honey-dews last Year, &c. for on these our Country People lay great Stresses, and therefore I should here say something particular of them: But as these seldom fall in Plenty till the next Month, I shall postpone giving an Account of their Nature till then; and proceed to say, that as May is the prime Month in the Year for swarming of Bees, the greatest Care ought to be taken to watch their Swarming, that they be not lost for want of Care: For

*A Swarm of Bees in May is worth a Load of Hay:  
 But a Swarm in July is not worth a Fly.*

But

But our Country People enlarge the first Line, and say,

*A Swarm of Bees in May*

*Is worth a Cow and her Calf, and a Load of Hay.*

Which leads me to be more particular on

*The Profit of Bees.* — Bees may be bought and removed at several times of the Year, as I shall hereafter observe: But the safest Time of all is reckoned to be the Month of *October*; however, some will buy and remove them the first, second, or third Night after they are hived, before they are too busily engaged at work, at a Price accordingly. When they are purchased in *October*, the usual Prices are as follow; as *Dr. Warder*, in his *Monarchy of Bees*, at Page 108. has calculated them; and gives this Account:—Suppose, says he, you begin to raise your Apiary with ten good Stocks, which in some Parts of this Kingdom may be bought for ten Half-crowns, in others for Crowns; but in this Country they are ten Shillings a Hive: The first Year you will, by doubling your Casts, be able to have about twenty-five good Stocks, and the next Year about sixty, and the third Year about a hundred and fifty, barring Casualties, and if they prove good Years: So that when you have raised this Stock, you are rich enough, if you are not covetous: So that in three Years time you may from ten Hives (if good Weather comes) have Bees enough to take the fourth Year an hundred and sixty, more or less, according as the Goodness of the Weather is; which, set them all at five Shillings a Stock good and bad together, comes to forty Pounds Sterling. And, I presume, whoever shall arise to the Half of this Profit, will suppose themselves very well rewarded for the Care they have taken about them: But of this more hereafter, when I shall make use of some of the Words and Directions for the Im-

Improvement of Bees, by the two latest Authors that have wrote on this Subject, viz. Dr. *Warder*, and the Reverend Mr. *Thornley*; who, having read, and accurately traced, the Works of all former Writers, and made many Years Observations of these excellent Creatures from their own Experience, have given the World the best Accounts of them that ever were published. The first dedicated his Treatise to Queen *Caroline*; the last printed his in 1744. And although the latter contradicts the former in several of his Pages, yet I must needs say, in my humble Opinion, they have both acted their Parts in the most pleasant, the most instructing, and in the most improving way of all others; the informing of Persons Judgments, chiefly by Facts; a Specimen of which take in the following useful Account, as wrote by Mr. *Thornley*:

*The Reverend Mr. Thornley's Account of the Swarming and Hiving of Bees.*——The principal Reason why they swarm is the want of Room: Therefore in Colonies, where they are not at all streightened, they seldom or ever swarm; except (says Mr. *Rusden*) through Distaste, Disturbance, or Mismanagement.

And in Hives they swarm not merely for want of Room, without other concurring Circumstances, such as a King in Readiness, Multitude of Subjects, Prospect of Plenty, together with Weather, which is inviting.

Every Swarm is composed of all the three Sorts; viz. a Queen, great Numbers of common Bees, both old and young, and Drones, whose Number are uncertain; some Swarms have more of these than others. Dr. *Butler* is of Opinion, that those Swarms which have most Drones will most surely prosper; but I doubt it, till I see it proved.

The Multitude of Swarms does not predict or promise the Prosperity of an Apiary; witness the

last Summer 1743. in which I had no less than eighty-six or eighty-seven Swarms; a considerable Number of which at *Michaelmas* had not Honey half enough to maintain them till this Spring.

The old Stocks also sending forth such Multitudes (swarming most of them twice, and many of them three times), they were greatly reduced in Strength, and in Store. Many about the Country are already dead, both old and young; and, no doubt, many more will yet die.

Neither do the earliest Swarms always prove the best, or prosper most, as early as the latter End of *April*, or the Beginning of *May*: The Weather often afterwards is very wet and cold, shuts them in, and prevents so long their Labours, that I have frequently known even these either totally destroyed, or exceedingly reduced.

But Swarms at the latter End of *May*, or Beginning of *June*, shall prosper, and answer the Owners Expectation.

Three Years ago I had a Swarm upon *Midsummer* Day, which laid in a sufficient Store of Provision for their Support till the Spring following; and they swarmed that Summer either the last Day in *May*, or the first of *June*, and every Summer since.

And it is more than twenty Years since I had a Swarm the Beginning of *July*, which stood thro' the ensuing Winter, and prospered well.

When you observe your Hives well replenished with Bees, and begin to lie forth about the Hive's Mouth in the Day-time, and go in at Night, and also the Drones appear, you may expect Swarms, especially if the Weather is clear, calm and warm; for in a cloudy, wet, or stormy Season, the first Swarm seldom or ever rise; though the Casts, or second Swarms, often rise in indifferent Weather.

And whenever you see them gathering together in little Clusters upon the Hive, or Stool, you may infer they are preparing, and even ready, for a Dance; and may expect them to rise presently.

Get your Hives in Readiness, and of different Dimensions, that you may the better suit them to the Swarms. To over-hive them, will be a great Disadvantage; if under-hived, the Prejudice is the less, and it is easy to give them Inlargement.

An Hive holding three Pecks, or two Pecks and an half, will be a fit Size for an early Swarm of eight or ten thousand Bees: An Hive of less Measure will be large enough for those that come later in the Year, and in less Numbers.

It may, perhaps, be of some Service here to acquaint the Reader with an Experiment I made in *October* last; when, putting the Bees of a small and late Swarm into an empty Hive, and afterwards upon a Table, I took a particular Account of their Measure, Weight, and Number; in Measure a Quart, in Weight one Pound and a Quarter, in Number two thousand. I first imprisoned the Queen; and, having a Person at hand to assist me in the Operation, particularly in counting them over, which took up the greatest Part of the Time, we had gone thro' the whole Trial, and perfectly finished it, before the least Sign of Life could be seen in one single Bee; but in a few Minutes more some Signs of Life began to appear first in their moving Legs, and then in other Parts; upon which I put them into another Stock, where they are still in Being.

From hence it is easy to compute the Number of Bees in a Swarm, of four or five Pounds in Weight, *viz.* eight thousand or upwards; proportionable to which would be an Hive of such an Extent.

Your Hives thus at Hand, you may dress them agreeably to your own Fancy. I rub mine only with a small Handful of Fennel, dipped in a little Ale sweetened with Sugar ; sometimes with nothing at all, except it be a new Hive.

It is a common Practice with most to place Sticks in the Hives, the better, as they suppose, to fasten the Combs : But if your Hives are of a right Form, and narrower at the Mouth than the Middle, I see not any the least Occasion for such a Precaution ; the Bees will themselves effectually secure the Combs from falling.

Besides, you will gain this Advantage by this means, that is, taking out the Combs full of Honey, in a manner, intire, and not broke in Pieces.

The two principal swarming Months are very well known to be *May* and *June* : As to the Hour of the Day, it is not certain ; I have known them to rise near Eight in the Morning, and after Four in the Afternoon ; but most generally between Eleven, and One and Two. It might not be amiss to have a watchful Eye upon them a good Part of the Day ; and now be sure to give them Door-room enough, opening the whole Passage for them, though it be a Week or ten Days before the Swarm comes.

As soon as your Swarm is settled, hive them, to prevent any other joining with them : The Method of hiving them you will learn from their Place and Manner of Settlement. A Twig, or small Branch, you may gently cut off with a sharp Knife or Saw, or shake them into the Hive, setting it down upon a Cloth, ready spread upon the Ground, with a little Stick placed across to bear up one Side, to give them the Liverty of passing in and out.



If you shake them into an empty Hive, and many (as usual) return to the Place, repeat the Action as often as there is Occasion, knocking them out of the empty Hive upon the Cloth ; you will with Pleasure see them croud to their Companions in the other Hive, like Sheep into a Fold.

But if they settle, as sometimes, upon the Body or large Arm of a Tree, &c. the best way is with a Brush, or a little Handful of small Branches, to sweep them into the Hive.

Being thus fixed in a new Habitation, in the Evening, when they are all within and quiet, carry them to the Place you have appointed for them, leaving them no Passage into or out of the Hive, but only at the Door, which may gradually be reduced to a narrower Compass.

When they are swarming and dancing a *Levalto* in the neighbouring Cloud, I never entertain them with any sort of Music, as do the Country-people, which drowns the delightful and more melodious Sound of the Bees : Nor is it of any Service, save to prevent Disputes, and to preserve Peace among Neighbours.

I have often known the Queen to fall upon the Ground, not being able to fly, through some Defect in her Wings ; then the Swarm returns home again, and the next time they rise, they have another Sovereign. I have known the Swarm stay in the Hive near a Fortnight before they rose again ; and, perhaps, waited for a Leader : Sometimes they rose no more.

The poor disabled, unhappy Princess, I have picked up in the Grass, but never without some Attendants, whom nothing but Violence could separate from her.

To conclude : If Ants are commended for their prudent Pains, providing their Meat in Summer, and gathering their Food in Harvest, though unserviceable

serviceable to Men; how much more worthy of Praise are these instructive, exemplary Insects, who herein set us (both as Men and Christians) a Pattern fit for our Imitation! Go then to the Ant (or rather to the Bee), thou Sluggard, and learn Wisdom.

I.

**M**Y drowsy Pow'rs, why sleep you so?  
Awake, my sluggish Soul!  
Nothing has half thy Work to do;  
Yet nothing's half so dull.

II.

The little Ants for one poor Grain  
Labour, and tug, and strive:  
Yet we, who have an Heav'n t'obtain,  
How negligent we live!

III.

Good God! on what a slender Thread  
Hang everlasting Things!  
Th' eternal States of all the Dead,  
Upon Life's feeble Strings!

IV.

Infinite Joy, or endless Woe,  
Attends on ev'ry Breath;  
And yet how unconcern'd we go,  
Upon the Brink of Death!

*In Praise of BEES, being Part of that excellent  
Poem wrote by JOSHUA DINSDALE, A. M.*

**A**FTER their Origin, th' industrious Bees  
Dwelt in the clefted Rocks, or hollow Trees;  
And in the Grot's Recess, or leafy Shade,  
The Wonders of their fragrant Art display'd.  
With the sweet Odours of fair blooming Flow'rs,  
We call'd them from the Woods to ready Bow'rs,  
And made them love the Hive: For offer'd Gain  
Will cheat the careful Bee, and simple Swain.

Thus Hives were first with golden Honey fraught,  
 And their Republics sharpen'd human Thought ;  
 Inspir'd, with Love of public Good, Mankind,  
 Till Fraud and Luxury debauch'd the Mind.  
 But difficult's the Task, with curious Eye  
 Into the Myst'ries of their State to pry ;  
 For, cautious, they avoid an open Light,  
 And hide their Labours from the Robber's Sight.  
 Should any Spy disturb their balmy Seat,  
 They strive with Stings his Treach'ry to defeat ;  
 And boldly fly in the Invader's Face,  
 To make him, inobservant, shun the Place.  
 Yet still the sweet industrious Kind invite  
 The raptur'd Muse to bring their Praise to Light  
 (Tho' Honey all their wise Ambition raise),  
 And consecrate them in her grateful Lays.  
 The Sage, with Art, and searching Thought endu'd,  
 Who subtle Nature's inmost Secrets view'd,  
 By quick Invention a nice Hive compos'd,  
 And in transparent Glass the Bee inclos'd ;  
 Which all the Wonders of the State display'd,  
 And open both their Art and Manners laid.  
 When Ev'ning paints the Heav'ns with rosy Stains,  
 And Flow'rs smell sweet upon the dewy Plains,  
 The Bee, returning, prudent wings its Way,  
 Nor sleeps fortuitous, like Birds, a Prey ;  
 But in its Cell is lost in Sleep profound,  
 Tho' the Rain beat, and the Storm murmur round.  
 Not Man, with all his boasted Art and Care,  
 Lives safer from th' Inclemency of Air,  
 Tho' he a *Louvre* with vast Cost provide,  
 A Monument of vain unbounded Pride.  
 Ev'n, what too often wastes our wretched Race,  
 They never feel pale Poverty's Disgrace ;  
 But in the blooming Seasons hoard their Store,  
 In common live, nor proudly wish for more.  
 Equality and Concord warm each Breast,  
 By Love of public Good supremely blest.

C H A P. XXIII.

*A further Account of Weeds.*

**H**OW the pernicious Dunny Weed, or Colts-foot, &c. is kept down from damaging a Barley-crop.

—It is true, that forward sowing of Barley is the safest and surest Way to obtain a full Crop of it, provided the Ground it is sown on is pretty clear of Weeds: But where a Field is over-run with this horrid Weed, that defies the Ploughman's Art to extirpate, Barley ought not to be sown for the following Reasons: First, The Dunny Weed generally shews its yellow Flower-head in *March*, which is the Month that most Farmers, both in *Vales* and *Chester* Countries, sow their Barley-seed in. Now where a Field is taken with this Weed, and the Barley is sown early in it, it will quickly overtake the Barley; and thus getting the Mastery of it, will either kill the Grain, or cripple its Growth to that Degree, as to render it perhaps hardly half a Crop at Harvest. I knew a gravelly Field of three Acres of Barley almost spoiled by this very Weed; for its Stalks, and broad Leaves, have such numerous deep stringy Roots, that they potently draw to them the Goodness of the Ground for their Nourishment, and so get the better of the more weak-rooted Barley. Secondly, To prevent this Loss in a great Degree, let a Farmer plow his Ground well with a Fin, or Iron Wing, fixed on the Side of the Share, the last time but one before the Barley-seed is sown; for, by this means, the Fin will cut in two most of the Stalks or Strings of the Dunny Weed, which will be prevented growing and increasing into more of these Weeds, by their time of lying, and afterwards being disturb'd again at the last plowing

ing and harrowing-in of the Barley, which on this Account should be in *April*. Thirdly, As this Weed is in its full Sap in *April*, and Beginning of *May*, the Plough and Harrows, by this their late Operation, will so cut and bruise the Stalks of the Dunny Weeds, as to make them (what we call) bleed, or lose their Sap; and thus they become much weakened, and their Growth checked in favour of the Barley-crop. With this Management, and with steeping the Barley-seed, the Weed may be kept under, which otherwise might keep under the Barley: Then if the Barley-seed was of a right Sort, and sown in a well-prepared Soil, there will consequently be a great Crop at Harvest: But when I say, a right Sort, I mean, that when Barley is to be thus sown late, in order to check the Growth of the Dunny Weed, it is absolutely necessary, that such Seed came last off a Sand, or sandy loamy Soil; for this Sort is what we call the Rathe-ripe, or Forward Sort; and by such its Quality, it will be forwarder ripe than the common Sort of Barley, that was sown earlier.— This fine profitable Barley-seed I furnish to Gentlemen in any Quantity to any Part of the King's Dominions.

*How the whitest Barley may be got.*—This rathe-ripe Barley sown late in *April*, or at the Beginning of *May*, requires the least Time to stand in the Field; and for this very Reason will prove the whitest of Barley, if the Seed was sown in a chalky, gravelly, or dry, loamy Soil; because Rains will have the less Time to fall on, and bash the Ears of Barley; for the more Rains that fall after the Corn is near ripe, the higher Colour the Barley will have: And though the Seed is sown latish, it will be ripe betimes; because, if the Seed is steeped, and the Weather is favourable, the Barley-corns will strike Root presently, as having at this time

of the Year little or no Frosts to impede their Growth, nor long Nights to retard it; whereby such Barley will certainly acquire a whiter Colour, and a mellow Body, than that sown in *February*, or early in *March*; and, on this Account, will assuredly fetch the greater Price at Market; for this Quality in Barley is now much in Esteem for making the palest Malt; which all Farmers can't enjoy; only those that have a proper Soil, and give the Seed such a proper Management, have Reason to expect the Enjoyment of such a Benefit. The Year 1744. proved the Truth of this, in a high Degree; for, by the long Drought that presently succeeded the Sowing of dry common Barley-seed, the Crops, at Harvest, were under three several Ripenesses, when mowed; viz. green, half-green, and ripe: A Condition repugnant to the making of true Malt; for it is impossible, that Malt made with such Barley should be otherwise than in different Degrees of Goodness, for Reasons I intend hereafter to give, when I write of Malt, &c.

*How a Farmer suffered a considerable Damage in his green Corn-crops, by a certain Weed, called, in Hertfordshire, Arpent.*——— This is a most destructive Weed, especially to Corn-crops, because of its quick and great Increase; for this is one of that Sort that will grow by either Root or Branch; and is so prone to grow, and maintain its Growth, that, if it lies out of the Ground a Month together, in some Weather, it will, like the pernicious long-lived Dock, not die. And it is, on this account, that Housewives love to see it in their Houses, for the sake of its long continuing green, either in Water, or out of Water; being of a most succulent Nature, somewhat like Houseleek: Nor is this its tenacious, retentive, sappy Quality, to

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be wondered at, since a small Stalk, or Branch, not above six Inches in Length, nor bigger than a Wheat-straw, has sometimes been seen with six or more bulbous Roots to nourish it; some of which are in the Shape of a small Shallot, others Radish-like, long, and much bearded at their Ends; and these all in one Bunch of Roots, whereby it acquires a very potent Power to penetrate the Earth, and draw so much of its Quintessence to its Assistance, as qualifies it to rob a great deal of the Corn that grows near it, of that vegetative Property necessary to forward its thriving into a full Ear of large Kernels. This horrid Weed grows, for the most Part, in loamy Soils, both in the stiffer and shorter Sorts; and gets such Possession of some inclosed *Chelturæ* Grounds, where a careless Husbandman is the Occupier, that it is almost above his Match to destroy it; as I shall make appear by the following Case: A very wealthy Farmer, and one who lives not a great Way from me, under the Reputation of a very acute Manager of his Farm, because he generally plows and dresses his Land more than many of his Neighbours; and gets fine Crops of Grain accordingly; yet this very Farmer, notwithstanding all his Charge, Vigilance, and Care, had an inclosed, loamy Field, containing two Acres and a half of plowed Ground, overrun with this Arpent-weed, that caused his Wheat, Barley, Peas and Bean-crops, sown in the Random-way, to grow thin, though he sowed the Seed thick; and, consequently, had a poor Crop at Harvest: Which provoked him, for several Years past, immediately after the Ploughing and Harrowing of this Field, to gather up the Arpent-roots, and their Stalks, that the Plough and Harrow broke in pieces, and left on the Surface of the Ground. In *August* 1743. this same Field had

a Crop of Wheat reaped off it ; and, as this Farmer keeps his Land always rich in Dung, he resolved to sow the same with Barley in the following Spring-season. To this Purpose, he gave it several Ploughings and Harrowings, preparatory to bring the same Land into a fine, loose, porous Condition, for the better Reception and Covering of the Seed ; and, after such Ploughings and Harrowings, employed several Hands to gather up the broken Roots and Pieces of this Arpent-weed in Baskets : And this he did (as one of the Men told me, that was one of his Gatherers) to the Quantity of a Dung-cart full, between last Harvest and this Spring-season 1744. And this Work he continu'd, even some Time after the Barley had appear'd green ; for where-ever they see a Piece of Arpent appear green or sprouting, they pull'd it up.

*Another Case of the same Farmer, shewing how the Arpent-weed damaged a Crop of Horse beans, while they lay stored in a Barn.*——The Mischief of this Weed does not always end with the getting-in of the Crop of Grain it grew amongst ; for, as its Remains generally grow again, after Weeding-time, into high Stalks and Leaves, it unavoidably must be mowed with the Barley or Oats, or Peas or Beans : And this happened to be the Case of the before-mentioned Farmer, who having a great Crop of Horse-beans that he mowed, there was so much of this Arpent-weed amongst them, that grew in this same inclosed Two-Acres-and-an-half Field, about three Years ago, as obliged him to house it with the Beans ; for it was almost endless Work to pick it out from amongst them in the Field. Now it happened, that the Beans and their Stalks were got dry enough to carry into the Barn, before the Arpent was thoroughly wilked and dried ; and, in this Condition, for fear of rainy



Weather, he carried both Corn and Weeds in together : But so it was, that the succulent Leaves and Stalks of the Arpent kept alive, and re-assumed a sort of Growth ; at least, they preserved themselves in a sappy Condition : And this increased the more by the Sweat of the Beans, that added a Moisture to their Moisture ; which the long-liv'd Arpent readily embraced, and retained so long, as to cause great Quantities of the Beans to mould and rot, as they lay in the Barn ; inso-much that, when the Corn came out to be threshed, a Sack of it was not worth so much, by three or four Shillings, as they would have otherwise been, had the Horse-beans been housed sound and free of this destructive Weed. If then an able and diligent Farmer as this is, suffers so much by a single Weed ; What must be the Case of a poor indolent one ? Why, as the masterly Growth of Weeds has occasioned many a Farmer to break, and come to Ruin, it, in course, must be such a one's Case : And this, because when the Weeds get Mastery of a Crop, they not only spoil the Ground for that Year, but it afterwards becomes impoverished by their repeated great Suction, and unable to support succeeding Crops of Grain. Besides which, they cause the Ploughing, Dressing, Seed, Rent, and Labour to be mostly lost : And thus are produced those fatal Consequences, that not only affect the present Tenant, but those that come after him for many Years ; and chiefly for this Reason, that the Seed of the Arpent, and other Weeds, are bred to an infinite Increase, and scattered over the Land : So that there is hardly any such thing as totally destroying them, and their Progeny, while Seed is sown, and Crops of Grain suffered to grow in the Broad-land Manner : Which Cases oblige me to resound the Praise of the Thresh-wheel

wheel Drill-plough and Horse-break ; because these Instruments may be made to clear Land of this pestiferous Arpent-weed, and all others, at the same time they are fining the Earth, and nourishing the Crop of Grain, in a far cheaper manner than any other Way possibly can.

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C H A P. XXIV.

*Of a Pointing-dog, &c.*

**T**HE Copy of a Letter from a Gentleman to this Author, for buying him a Setting and Pointing Dog, &c.

S I R,

*July 10th, 1744. Devon.*

**I** WAS favoured with yours last Week : In Answer to the same, I do assure you, I think myself obliged to you for remembring me ; and, I hope, this Year, as Cyder will be plenty, to send you a Cask. As for what you mention about the Secret for destroying the Fly on young Turneps, &c. that is too late to try now. These Vermin generally infest young Plants in the Spring : But another Season I will (God willing) try the same, and comply, as you desired, with the Money, and every thing else.

As for the Peat-earth Ashes, we have great Plenty of them, and are our common Fuel near the Commons ; a large Propriety of which belongs to me ; so can get many Thousands of Loads when I please : We look upon those Ashes here, when burnt in our common Chimneys, to be good for little, as they retain but few Salts. Our common  
Manure

Manure here, is Sea-sand and Lime, mixed with Earth and Dung: Some burn the Turf off the Grounds; some do not: The latter I take to be best; as, to be sure, the Strength of the Ground is in the Superficies; and when that is destroyed, as it must by burning, the Remainder is but poor: However, People have great Crops this Way; which I attribute to their liberal dressing the Grounds. I should be glad to try the Peat-ashes, if you would direct me how to burn them: Our Blacksmiths here burn them to a Coal, to work in their Forges. The Method they take, is, to burn them in Heaps, as you do Charcoal, and covered over. I have got some *Chinese* Pigs from a Gentleman near me, who brought them from Abroad: We run into that Breed much. I should be glad of a good Ploughman much; and one that can shoot, or knows how to kill Game; for I have large Royalties of my own; and I have now left off Hunting. Twelve Pounds a Year, with Washing and Lodging, are great Wages. I suppose most of your People can drive a Chaise, or Chariot, if it should be required.

If you could get me a Woman that understands Breeding of all Kinds of Fowls, as Pheasants, &c. As for our Dairies, we scald our Milk; which your People know nothing of; and make but little Cheese; for the Skim-milk turns to better Account, to feed Pigs, or to bring up Calves in the House with, when they come to be two Months old; we mix with some Water-gruel; Hay they have in little Racks, and some Oats: In the Spring we turn them out: Few People have larger Cattle: Some we turn away with their Dams. I suppose your People all know how to suckle Lambs, and every Branch of a Farm. Sobriety and Honesty are two of the chief Ingredients to complete a good  
 Servant;

Servant; without which, I would by no means take any one: The more diligent, the better I can make his Place; which happens in my way, more than in your Country, as Perquisites will arise: A good-humour'd Man I love much, especially such can't avoid loving his Cattle. We plow here with Oxen chiefly, as it is cheapest; and afterwards sell them, as Young-ones come on, to the Grasers, or feed them off ourselves. Our Soil is a light Hazel-earth, and produces good Corn and Pasture, but is a little rocky; so doubt whether your Drill-plough would do here; as some Rocks you see, and some you can't, being covered six Inches, or more. We have now extreme bad Weather for the late Hay; it has rained for above three Weeks time, and is now still falling. Whatever this Country affords, is at your Service; as is, SIR,  
*Yours to command.*

Let me hear from you often, I beg.

P. S. Pray let me know how Estates lett in your Country; ours decrease in Value daily, though Wool yields a considerable Price; viz. Six-pence *per* Pound: Wheat is eight-and-twenty Shillings *per* Quarter, Barley twelve Shillings, Oats the same; Butter Four-pence Halfpenny *per* Pound, and eighteen Ounces to the Pound; which is cheap. Our Countrymen bring in Privateers daily; so what that may do, when a Peace comes, I don't know. A vast deal of Money is brought into this Country by our Sailors; which, we hope, will raise the Estates, when the Money comes to be applied, as these Folks are mostly Husbandmen. I wish you could get me a good Pointer; I will give a good Hogshead of Cyder, and a Piece of Gold: So pray try your Friends: Mine is dead lately. I have a vast Quantity of Birds.

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The Copy of a second Letter, for this Author to buy a Gentleman a Pointing-dog.

S I R,

I AM obliged to you for the Favours you have bestowed upon me, in giving yourself so much Trouble about the Dog-pointer: I would have him to do his Duty well, in all respects; and to suffer a Net, upon Occasion. The chief Use to me, is for the Heath-game or Grouse, of which I have on my Moors a pretty many; and now is the Season: It is a noble Quarry; and the Cock is the most beautiful Bird we have in *England*. I shall leave it intirely to you, to see the Dog perform his Duty, in both Pointing and Setting; and the first in Company with other Dogs; and how he hunts his Grounds, fast or slow: The Age is well enough; for, you say, this is the second Season: You don't mention whether Dog or Bitch; but the latter I should chuse; but, if I can't be so lucky now, must wait another Year. If the Man uses me well now in this Dog, I may be a Chap, for several Years, to him, in supplying my Friends: And I promise, upon my Word and Honour, to give him something more than the Price, if he proves according to my Expectation. The Dog you speak of is that of two Years Hunting in Company; not the small one of five Guineas, which, you said, was a Gun-dog and Setter: This, you said, the Man asked seven Guineas for, and a Hoghead of Cyder; but believe, he might abate a Guinea: You said, he was broke by a Gentleman's Game-keeper in your Neighbourhood. Now, I think, you had best have the Liquor yourself, and agree with the Fellow for a certain Sum, to be delivered in *London* to the ——— Waggoner,  
and

and take his Receipt, or Bond, for the same; I should rather have the latter, as the Penalty is double the Value. I will willingly give him six Guineas, and a Guinea more, if he proves as before-mentioned. If he, or any other, like the Proposals, I will immediately order the Money to be paid in Town, upon the Delivery of the Dog. I hope he is a handsome one; as our People here expect something curious from your Parts of the World. Your Cyder shall be surely sent to your Order in *London*, as soon as it is fit, free of all Charges, as a small Acknowledgement of your great Favours. Pray, how far may you be from *Basingstoke*? I would send there, on Purpose for the Dog, if that could be done; which is about four Days Journey from hence. I am, S I R,

August 25th, 1744.

Yours, &c.

Which Letter I answered; and since have received the Copy of the following one, viz.

A third Letter, concerning this Author's buying a Pointing-dog for a Gentleman.

S I R,

I AM favoured with Yours, dated the 12th of this Instant; and think myself under great Obligations to you, for the Trouble you have taken about the Dog; which I thought, by your former Letter, would suffer a Net; which is of singular Use, upon some Occasions, in order to preserve some Birds alive. I think you have offered a full Value in the six Guineas; more I am not willing to give, especially as the Case stands; the other Guinea I would not grudge, would he stand the

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Net.

Net. I forgot to mention how he is inclined to Mutton ; for that is a very material Article : I wish the Man a better Chap, if he refuses this Offer. My Sister is soon to be in *London* ; and you may find her at Mr. ——— a ——— in ——— street in the *Strand*, where she lodges : She will give you a good Glass of Cyder, and make my Acknowledgement to you, for the Civility you have shewn me. Your Hogthead of Cyder will come with a Dealer's in Liquor of that sort ; and if you can help him off with some, shall be obliged to you. I beg you would save me some Beech-mast ; and shall be obliged to you for a Turkey-Poult or two : I expect some from abroad myself ; and, if I succeed, can set you up again. I will take no Servant-man, till you can supply me with a real good one ; his Place will be upwards of twenty Pounds a Year, with his Perquisites : As for a Woman Dairy-maid, and to look after Turkeys and Pheasants, I will wait till the Spring, and then expect one : The more of a Sportsman the Man is, the better ; he will have no one to controul him but myself ; and the more obliging and industrious he is, the more Advantages he will reap : But your Caution is sufficient. I think the Method your Gentlemen take, in having a Game-keeper, is illegal ; as not being a menial Servant, or qualified according to Law, as the Statute directs ; and, consequently, is liable to the Penalty the Law inflicts in such Cases : This, here, would be taken notice of ; but a Blot is no Blot till it hits. I will give you a particular Account about the Cyder, when you have tasted mine at my Sister's : And, whatever Grafts you want of our Fruits, will send you a whole Bundle. If the Fellow will take the six Guineas, or engage about the bearing the Net, at his Price ; *viz.* seven down ; then

then the Thing is all over ; and I will order your Charges to be paid, as above hinted. Your Answer, as soon as possible, will oblige, S I R,

Aug. 17th, 1744.

Your most humble Servant.

*An Account of the excellent Nature of Sprat-barley, &c. from Derbyshire and Nottinghamshire: In a Letter to this Author from a young Ploughman-servant, that he sent to a Gentleman in Cheshire.—*

S I R,

I Received your Letter with great Satisfaction ; and am pleased to hear, you have sown the Sprat-barley, for the first Time, in your Farm : I do assure you, it is a most valuable Sort ; and so much in Esteem about *Derby*, and *Mansfield* in *Nottinghamshire*, that it is preferred to all others for making a Malt, that produces a charming Ale, if the Malt is made by a skilful Workman, and dried with Coak, because of its fine pleasant Taste and Goodness ; and is here sold for twenty Shillings a Load, which is six Bushels ; and is very likely to be much desired ; for, I hear, they have a great deal of Barley mowed, and have suffered much Damage by the late great Rains, which continued near a Fortnight together ; and the same here : But, as our Harvest is much later, we have suffered but little yet. Our Land is of a wet, springy, and loamy Nature ; and the oftener it is plowed, the more Weeds come up, even as much Weeds as Corn ; and, when these get a great Head on the Ground, as they will soon do, they cannot easily be destroyed ; for I never was so hard set to keep them under, and the Twitch-grass, which it is very subject to ; and doubt, notwithstanding all my greatest Endeavours, that I shall not be able



to destroy them in any reasonable time; because, the more I plow, the more they multiply; therefore it is very different from the *Hertfordshire* Land: And, as it proves to be more profitable for Pasture than Corn, great Quantities of it are laid down for Grass-land throughout *Cheshire*. I am now preparing the Ground in the best manner I can possible, for a Trial of the Three-wheel Drill-plough you have sent us; but, by reason of the Continuance of the wet Season, I cannot yet complete it for that Purpose: However, in a Fortnight's time, I intend to begin sowing: therefore, against which, I desire that you will send me the exact Form of the two little Irons you mention, how they must be fixed, in order to complete the Drills; for I cannot do it well by the Harrows: For, by this, you will do me and my Master a great Service: And, with it, I desire also that you will be so kind as to send me as exact a Form as you can of the Instrument you use for cutting of Chaff, so that I may get one made by it; for my Master has a great Desire to have one of them here. We have little Convenience for sowing Peas and Beans, very few of which are sown here; for the greatest Part of this Estate is kept for a continued Pasture, for maintaining ten Milch-cows all the Year; and this is what we chiefly trust to, as most Farmers do, for paying their Rents, because they find most Profit by it, as this Ground exceeds most others for this Purpose, in making excellent Cheese and Butter. I have not an Opportunity, at present, of sending you a full Account of Potatoes, according to my Promise; but intend to do it in my next, which, I hope, will be before the Season. Apples are so plentiful here, that they are sold for Four-pence a Bushel: My Master having a great Quantity of them, he intends

tends to use great Part of them for Cyder; and has a great Desire to try the Method you recommend, beyond most, or all others: Therefore I desire you will send me the best Receipt you have, not only for making, but also for preserving that excellent Liquor; for they cannot make a good Sort in this Country. The Parsnep Apple-tree, which I informed you was dead, is yet alive, and appears to be vigorous; to the Surprise of me and my Master.

September 1st, 1744.

The Copy of a Letter relating to that excellent natural Grass-Seed, saved from the Pods of the *Lady-finger-grass*.

S I R,

**H**ERewith I have sent you — Ounces of *Lady Finger-grass* Seed, as you desired: It is a Seed so scarce to be got, that it is difficult to gather two Quarts of it among five Acres of Meadow-grass. I left several Parcels of Grass standing at Mowing-time, for obtaining this Sort of Seed in right Order, by letting it stand to ripen. If there be proper Care taken of its sowing and preserving, you may increase it to what Quantity you please; for it is a very hardy Grass, and will grow almost upon any Soil; by which you will become Master of, perhaps, the finest natural Grass in the whole World: And, for keeping it in a flourishing State, if you will order your Servant to strew some Coal-ashes over it, to the Quantity of sixty Bushels, every three Years, on every Acre, this Grass will be prodigiously increased, and made to grow, in

a

190 AGRICULTURE Improved.

a wet Summer, Knee-high; for which the Month of *December* is the best Time. I hope to furnish you with a good Quantity of wild Thetch Grass-feed, next Year; and am, S I R,

*Yours, &c.*

*Little Gaddefden, 20 Sept. 1744.*



INDEX

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# I N D E X

For the Month of *MAY*.

## A

**A**DDER, *an Essay on this and other Serpents*  
Page 109

## B

**Barley**, *how to sow it with Success in this Month* 17  
——— *a new and very cheap Receipt how to steep*  
*it in Coperas* 18

——— *a further Account of the Benefits attending*  
*steeped Barley* 21

——— *the good Effects of sowing it steeped in Drills*  
23

**Beans, Peas, Carrots**, *how some Farmers have a*  
*better Opportunity to improve them than most Gar-*  
*deners* 26

**Broad Beans**, *and the Hot-spur Sort, the Method and*  
*Benefit of sowing them in this Month* 28

——— *Beans, how to steep them to forward their*  
*Growth with Expedition* 29

——— *Beans, how a Rood of Ground was improved*  
*by them* 36

**Bustard Wildfowl**, *a Copy of a Letter from a Person*  
*concerning the catching and improving their Breed*  
*in the same Way, being a different Account from*  
*those of the Bustard published in January and Fe-*  
*bruary in The Modern Husbandman* 96

**Remarks on this Letter** 97

Beans

# I N D E X.

<i>Beans damaged by Mice</i>	Page 36
<i>Broad Beans, how the Leighton Gardeners prepare them for a forward Growth</i>	37
<i>Barbel, the poisonous Nature of its Roe</i>	80
<i>Bees, their Swarming, Hiving, and Profit</i>	166,
	167, 168
<i>Barley, how to get the whitest Sort</i>	176
<i>Barley, Sprat-sort, its excellent Nature</i>	187

## C

<i>Colt, an Account of the Death of one supposed to be occasioned by his drinking fowl Pond-water full of Insects</i>	68
<i>Some Account of stagnating Pond and Ditch-waters, and the Insects they abound with</i>	71
<i>Cows, how they were boved in Clover, and how they were recovered</i>	38

## E

<i>Eff Land, its poisonous Nature; the same of the Roe of a Barbel, &amp;c.</i>	80
<i>Eels and other Fish to take in the Night-time</i>	85
<i>Second and third Way</i>	86
<i>Fourth Way</i>	ibid.
<i>Experiment made on the Slug, or naked Snail, by a Ploughman</i>	115
<i>Estates, their Improvement</i>	141
<i>Eff-water, how it poisoned a Cat</i>	78
<i>Ewes, how to feed them for fattening their Lambs</i>	39
<i>—— of feeding them on green Oats</i>	ibid.
<i>—— the Disadvantage of feeding them, and their Lambs, on a thin Crop of green Oats</i>	42
<i>—— and Lambs, to feed and fat them among Beans</i>	46
<i>Eel, how it poisoned a Dog</i>	77

# I N D E X.

*Observations on the Death of the Eel and Eff* Page 79

## F

*Farmers, how necessary it is for them to observe the  
right Time of plowing, sowing, mowing, feeding  
Cattle, &c.* 3  
*Fish to take by Angling* 83  
*——Second Way* *ibid.*  
*——Third Way* *ibid.*  
*Fly Caddis, its Breed and Nature* 84

## G

*Lady Finger Grass-seed* 156, 189

## H

*Hoeing Beans by Hand* 35

## I

*Insects, Water, the great Importance of knowing their  
Natures* 57

## L

*Lambs, of fattening them in fallow Fields* 44  
*—— weaning them on green Oats* 45  
*—— weaning them in Pea-fields* *ibid.*  
*—— Grass, their Gelding* 49  
*Letters, three, their Copies from an ingenious Gentle-  
man concerning Improvements in Husbandry* 103  
*—— this Author's Answer to the same* 106  
*Land Eff, its poisonous Nature* 80  
*Letter from a Lady about improving her Estate, and  
this Author's Answer* 141  
C c Copy

# I N D E X.

<i>Copy of a Letter from an unknown Hand</i>	Page 89
<i>Letters, the Copy of three, about a Pointing Dog</i>	181,
	184, 185

## O

<i>Oysters of a Coperas Taste, their poisonous Nature</i>	81
---	----

## P

<i>Ploughman, how necessary it is for him to understand his Business</i>	31
<i>Polype Water-animal, and other Insects, their wonderful Properties</i>	56
— <i>a particular Account of its Nature</i>	58
— <i>its poisonous Nature, and that of other Water-insects, and of their Waters</i>	63
<i>Pond, of a Farmer's, the ill Consequences of its bad Situation</i>	74
— <i>Another Account of the same</i>	75
<i>Peas, sowing and hoeing them</i>	33
— <i>large and white, sown to a considerable Profit in May</i>	ibid.
— <i>called the Nimble Pea</i>	ibid.
— <i>Carolina</i>	34
— <i>a large Field of them eaten by Slugs</i>	117
<i>Crops of Hog-peas lost by Slugs</i>	118
— <i>How these Misfortunes may be prevented</i>	119
<i>Pigeons, how they eat a Field of Peas</i>	131
— <i>how they eat Wheat-seed</i>	136
<i>Pointing-dog, three Letters from a Gentleman, about this, and other Affairs</i>	181,
	184, 185

## S

<i>Sparrows, their Breed in May</i>	120
— <i>their Damage to Farmers</i>	121

*Sparrows*

# I N D E X.

<i>Sparrows, to keep them from hurting Standing-crops of Corn, and Fruits of Trees</i>	Page 124
<i>Remarks on Mr. Bradley's Letter on small Birds</i>	ibid.
<i>Sparrows, old and young, how to destroy</i>	128
<i>———— how a Boy robbed Houses by means of a Sparrow</i>	130
<i>Sheep, a new Attempt to feed them among Pea-crops</i>	93
<i>Seed St. Timothy, that produces an artificial excellent Grass, six Feet long, and may be mown four or five times a Year</i>	156
<i>Sheep, how a Farmer had eleven bowed in Clover</i>	37

## T

<i>Trefoil-seed, why best sent to distant Parts in its Hull</i>	48
<i>———— how many Ewes and Lambs an Acre of it will keep fat</i>	ibid.
<i>Trout-fishing</i>	81
<i>Trouts caught in Hydes</i>	84
<i>Tench-broth, how it restored a Gentleman, very much reduced by Sicknes</i>	88
<i>———— Receipt to make Tench-broth</i>	89
<i>Trees and Hedges, the great Importance of preserving them from Cattle</i>	90

## V

<i>Viper and Adder, their Nature and Residence</i>	111
--	-----

## W

<i>Worldidge, his Notes on Husbandry</i>	1
<i>Wheat, and its Incidents, in this Month</i>	8
<i>Wheat-crop, how one was improved by a Company of Soldiers</i>	11

*Wheat,*



# I N D E X.

<i>Wheat, French, why some think it better sown Broad-cast, than in Drills</i>	Page 12
<i>———— a new Method of sowing it</i>	13
<i>———— how it may be improved by the Drill-husbandry</i>	14
<i>Weeding in May</i>	52
<i>Wheat Crop, how one was weeded</i>	ibid.
<i>Wheat and Barley, how spoiled by Weeds</i>	53
<i>Weed, Dunny, how prevented damaging Barley-crops</i>	175
<i>The Case of a Farmer, who suffered much by the Arpent-weed in the Field</i>	177
<i>How the same Farmer suffered by the same Weed, as it lay in his Barn among his Corn</i>	179
<i>How the Three-wheel Drill-plough destroys the Hair, and other Weeds</i>	154

# F I N I S.



# AGRICULTURE Improved.

*For the Month of June.*

## CHAP. I.

**M**R. Worlidge his *Directions to the Husbandman for the Month of June.*—“ A Shower at this Time of the Year is generally welcome: Now *Phæbus* ascends the utmost Limits of the Zodiac towards the Pole Arctic, and illuminates our most Northern Climes; and makes those Countries that within a few Months seemed wholly bereft of Pleasure, now to resemble a terrestrial Paradise; and gives unto them the full Proportion of his Presence, which in the Winter past was withdrawn, that they partake equally of his Light with the more Southern Countries. The glorious Sun glads the Spirit of Nature, and the sweet Showers now refresh the thirsty Earth: The Grain and Fruits now shew themselves to the Joy of the Husbandman: The Trees are all in their rich Array, and the Earth itself laden with the Countryman's Wealth; if the Weather be calm, it makes the Farmer smile on his hopeful Crop.

“ This Month is the prime Season for washing and sheering of Sheep: In forward Meadows mow Grass for Hay.

B

“ Cast

2      *AGRICULTURE Improved.*

“ Cast Mud of Ditches, Pools, or Rivers : This  
“ is the best Time to raise Swine for Breeders.

“ Fallow your Wheat Land in hot Weather ; it  
“ kills the Weeds.

“ Carry Marl, Lime, and Manure, of what  
“ kind soever, to your Land ; bring home your  
“ Coals, and other necessary Fuel fetch'd far off,  
“ before the Teams are busied in Hay Harvest.

“ Weed Corn, sow Rape and Cole-seed and also  
“ Turnep-seed : Now Mildews or Honey-dews  
“ begin to fall.

“ Mind your Sheep, as we advised you in  
“ May.

“ Now begin to inoculate : Beware of cutting  
“ Trees, other than the young Shoots of this  
“ Year : Pluck off Buds, where you are not wil-  
“ ling they should branch forth.

“ Water the latter-planted Trees, and lay moist  
“ Weeds, &c. at the Roots of them.

“ It is a seasonable Time to distil aromatic and  
“ medicinal Herbs, Flowers, &c. and to dry them  
“ in the Shade for the Winter ; also to make Sy-  
“ rups, &c.

“ Gather Snails, Worms, &c. and destroy Ants  
“ and other Vermin.

“ Set Saffron ; plant Rosemary and Gillyflowers ;  
“ sow Lettuce and other Salads for latter Salading.

“ Gather Seeds that are ripe, and preserve them  
“ that are cool and dry ; water the dry Beds ;  
“ take up your bulbous Roots of Tulips, Anemo-  
“ nies, &c.

“ Inoculate Jessamines, Roses, &c. also trans-  
“ plant any sort of bulbous Roots that keep not  
“ well out of the Ground ; new-plant Slips of  
“ Myrtle ; sow latter Peas.

“ Dig Ground where you intend a Hop Garden,  
“ and bind such Hops to the Poles the Wind hath  
“ shaken off.

“ Bees

“ Bees now swarm plentifully ; therefore be very diligent over them ; they will require your Care.”

On some of the most material of the foregoing Articles I shall treat ; but first of all give some Account of the King of Grain, Wheat, as the most preferable Subject of all others.

## CHAP. II.

### *Of Wheat.*

**T**HE way they make use of in the Parish of — near Amptill in Bedfordshire, to weed their green Wheat Crops.—This Part of the Country lies very low and flat, and is subject to suffer by Inundations of Waters, which makes their By-roads almost impassable in some Seasons of the Year ; for here their Land is exceeding rich, as it consists of a sandy and marly blackish Loam, which answers to Part of the *French Verse* ;

*Bonne Terre, mauvaise Chemin :  
Bonne Teste, mauvaise Femme.*

Here their Ground lies in Ridge Lands, both in common open Fields, and in Inclosures ; and therefore is always plowed one way : And in the last it is very remarkable, that the Bur or Cliver Weed grows among their Wheat Crops every Year, and not near so much in the former. To account for this, I know of but two ways, and they are these : First, As inclosed Grounds are, for the most Part, those that lie nearest the Farm-yard, consequently they are mostly dressed with Yard-dung for Wheat Crops, because the less Ground the Waggon or

#### 4 AGRICULTURE *Improved.*

Cart Load of Dung is drawn over, the better it is for the Team, the Driver, and the Cart or Waggon : And as the Land is dressed from time to time with Dung, the Burs or Seeds of Clivers that are mixed in course with the Dung, grow among the next Wheat Crop, and produce this weedy Mischief. Secondly, As the Land in common open Fields lies farthest off the Farm House and Yard, it is generally dressed either by the Fold, or with some Hand-dressing, that has no Seeds of Weeds among it ; and because the Land of open Fields, for the most Part, gives the Plough a better Opportunity to kill all Weeds and their Seeds than Inclosures do ; for in the former, the Sun and Air dries and scorches much sooner than in the latter, where there is less Room for their powerful Influences. And for these Reasons I am apt to believe the Inclosures in this rich-soil'd Country are in particular so subject to be over-run with the Cliver or Bur Weed, that if it is not cleared off in time, it will twist and twine about the Stalks of the green Wheat, so as to pull it down ; And when this happens to be the Case ( as it every Year generally is, more or less ), the Farmer will have little Reason to expect a full Crop ; for this Weed, by its many clustering rough Side-shoots is so heavy ( especially after Rains ), that it is impossible for the Wheat to stand erect ; and when it is brought into a couchant Posture, by the Weight of this Weed, it commonly lies in a wet Condition, and thereby sometimes both Stalk and Ear are rotted, or at least made to produce a very poor lean Kernel, not half a Crop. It is this that obliges these Vale Farmers to endeavour the keeping down this troublesome sticking Weed in its infant Growth, before it gets Mastery of the green Wheat : And therefore in *May*, or at the Beginning of *June*, they make use of a large Drag Rake, whose great cross Head is furnished with

with about twenty iron Teeth ten Inches long, which one Man draws all along a Ridge Land, perhaps sixty Poles in Length, to break and cripple this Cliver or Bur Weed, that it may not damage the Wheat Crop: And that this may more especially answer the End, they generally draw it across the green Wheat with great Labour; for this is very hard Work for a single Man to perform; and yet for all this, their Wheat Crops in some wet hot Summers suffer very much by this pernicious Weed.

*How to prevent this Damage from the Bur or Cliver Weed.*—When this Bur or Cliver Weed grows rank, and past the Power of the Farmer to keep it from hurting his Wheat, the Damage must be great; and if the next succeeding Horse-bean Crop is likewise damaged by the Hair-weed, the Farmer consequently must be brought under a double Loss: For in some Seasons these two capital Weeds are above his Match, notwithstanding all the Care and Labour he can bestow to conquer them; and instead of having their Mischief lessened, it will of course increase, because some of them will shed their Seed and renovate their Species, with Time. Now to prevent these grand Misfortunes, I have this to propose, That where the Bur and Hair Weed thus reign, let but a Farmer make use of a proper Drill-plough and Horse-break, and he may utterly extirpate their Breed; that is, Let him sow his Wheat-seed out of a Drill-plough, and hoe with a proper Hoe between the Wheat; and likewise sow his Horse-beans out of a Drill-plough, and horse-break the Earth between their Rows according to Art, and he may depend on Success.

*How it concerns Landlords to prevent their Farms being damaged by Weeds.*—This is a very material Article; for it is notorious by a thousand Instances, that the Thistle, the Bur, the Hair, the Poppy, the

the Dock, the Cammock, the Cats-tail, the wild Parsnep, the Gould, &c. have been the Occasion that many a Farmer has broke, and not only ruined the Tenant, but greatly damaged the Farm; so that after such a Tenant the Rent has sunk, on account of the Farm's being worse than it was: Therefore where a Landlord has Eyes quick enough to see through this great Evil, if it is in his Power, he ought to prevent it, if the Tenant don't. And as I have formerly given an Example of a Landlord's making a Present of a Drill-plough to his Tenant, to improve his Farm, so ought many more do the like, rather than suffer their Farms to run to Ruin by the Growth and Increase of Weeds, and by sowing their Corn every Year in the promiscuous or random way, which occasions it. But for an Example of Industry, I here propose the Conduct of a most diligent and ingenious Improver of his Estate, now living in *Virginia*, who is so kind as to become my Customer and Correspondent.

*The curious Copy of a Letter, written by a very ingenious Gentleman from Virginia, shewing the several advantageous Ways he takes to improve his Estate:*

Mr. Ellis,

*Virginia, Jan. 17. 1743.*

S I R,

I Received your Favour of the 14th of *December*, 1742, and should have answer'd it some Time ago, if I could have made any Trials according to your Directions sooner. The three Wheel Drill-Plough I also received, and the Horse-break. The Drill I soon made Trial of, and at one Foot Distance, in *August*, drill'd eight Rows of Wheat, which soon came up, and now has a strong Blade of a Deep-green, and very promising, although it is

is upon an Oath Stubble, after six Crops of Tobacco, which we generally get from Ground well dressed (by penning our Cattle sixteen Nights in a Pen), before we sow Wheat, Barley, or other Grain. Immediately after this I plowed up ten Acres of Wheat Stubble, and sowed *Indian Peas* in Hills laid off so as to admit our Hook-plough cross and athwart, in order to bring the Ground into a fine Tilt for the Drill-plough; and in some measure dress'd the Land, by shading it from the intense Heat of the Sun: And in *September* I cut up the Haulm for my Sheep, which would have been much better for the Land, if plowed in; but I was apprehensive it would obstruct the Drill-Plough: Therefore I made it into Hay, and plowed up the Ground with the Wheel-plough, which made it extremely fine; then drill'd in Wheat again, at a Foot distance; the rest of my Wheat-Big and Rye I sow'd in Broad-cast among my Corn where the Ground was good, and the Land my Tobacco Crop came off last Summer, at least two hundred and fifty Bushels: It all looks strong, with a broad Blade curling on the Ground, and more promising than the Year before, though that yielded about ten Bushels for one, notwithstanding it was sown upon a Fallow of worn out Ground; as the former Occupier told me, and laughed at my attempting Things so out of the common Road or Practice of the chief Planters in this Colony. Therefore I hope to have near double the Crop this Year, because the Land is better; and by plowing our Corn cross and thwart, and hoeing our Tobacco, the Ground was in fine Tilt. I must confess, the drill'd Wheat upon the Wheat Stubble is the most promising; and as I sha'll hand-hoe it, and plow between the Rows, expect it will yield the better Crop at Harvest. I have prepar'd a Field of ten Acres for Barley, and shall sow Saintfoyn with it, likewise



likewise Barley and Lucern, which shall be sow'd after Steeping, according to your Directions.

I observe in several Parts of your Books you direct the Sowing or Spreading the several Sorts of Manure, and then Barley and all to be harrowed in together: And as that takes much Time and Labour, I have, to remedy that Inconvenience, endeavoured to make an Engine Cart, to carry out the Dung, and spread it in four Foot Breadth; to which I propose to fix a proper Instrument to sow Wheat or any other Grain in the broad-cast Way, and by fixing a Pair of Harrows to the Axles to spread the Dung, sow the Grain, and harrow it one way at the same time with only four Harrows, a Driver and Follower to attend the Harrows. The Cart is to be loaded with rotten Dung, and the Seed-box with Grain is contrived to take off at Pleasure, with Grain equal to the Ground that the Load of Dung will dress; and I think it will be done in a more regular Manner than by spreading or sowing, as it is now practised. I need not say any thing to you, that are so much the better a Judge of the Charge and Trouble that will be saved by this Engine, if it answers my Expectation. In the mean time you are at Liberty, without naming the Contriver, to mention the Thing, and let me hear how it will be received, if brought to Perfection; and then perhaps it will be worth while to solicit a Patent for the sole making; which I shall trust to you, and allow a reasonable Share of the Profit.

I must now beg your Patience, while I relate the Method I propose to put my great Farm into, and beg your Advice in any thing I am wrong. As I am little experienced in the practis Part, it cannot be expected I can be so proper a Judge in a Matter of so great Consequence. In the first Place, I have laid off my Fields in twenty-acre Pieces, with Lanes proper for Carts; and am now inclosing the  
same

same with a Timber Fence ; and intend, in the Spring, to plant various sorts of Mast, in strait Rows, for Hedges, that I hope will be fit to secure the Ground by that time the Timber Fence decays, and shall stock my Farm as follows ; to wit, Three hundred Head of Black Cattle, forty breeding Mares, thirty Sows, and a sufficient Number of Sheep to supply my Table ; which Stock, with the great Quantity of Straw I shall make, and the Advantage I have of getting rich, slimy, greasy Fæces out of the River, which runs near seven Miles round my Farm, to make annually Manure for ten Fields, at the Rate of five hundred Loads for each Field, twenty Bushels to the Load ; and by incorporating both Sorts together, under Shelter, fit it for my Engine-Cart : And this Ground thus dunged, I intend (if I can get the Favour of you to send me one of the Double-ploughs, completely fitted) to plow in two Bouts Stitches, till the Ground is fit for the Reception of *Tobacco*, which we plant in *May* and *June*, as you do Cabbages, at four Feet Distance, and hoe and hill four times, which generally comes into the House early in *August* and *September*, and leaves the Ground in the best Tilth for any Grain whatever ; and immediately I shall sow Wheat ; and upon the Wheat-stubble, what you call Bigg, which we find a most beneficial Grain for various Uses ; and upon the Bigg-stubble I propose to sow Rye, which does not with us require a very rich Soil, unless we propose no other Advantage but Straw ; for unless this Grain is sown in our hot Country till late in *March*, it runs intirely into Straw. Upon the Rye-stubble I propose to sow Indian Peas and Buck-wheat ; which, if it can be got into the Ground by the last of *July*, will be equal to the Dressing of Dung when it is rolled and plowed in the *October* following ; and so to lie for a

C

Barley

Barley and Oat-crop, to be sowed the *March* following. And upon this Stubble I propose to sow Turneps, to be fed off the Winter following, and then to go into Indian-corn, with two hundred Acres more of the natural Ground, which will make in all fourteen hundred Acres, in Tobacco, Wheat, Bigg, Rye, Oats, and Barley. The rest of my inclosed Ground will be for Pasturage, Hay, Woods, and Dressing. This Management will require at least eight Teams and eight Double-ploughs, besides two Teams to attend the Harvest; and as it is impossible with us to hire Harvest-people, I shall keep an hundred Hands, that will find sufficient Employment, as I carry on Tobacco and Corn-planting. At the same time our Barley and Bigg-harvest begins, the First of *June*, sometimes sooner, Rye and Oats next, and Wheat about the last of the Month, or the Beginning of *July*. Therefore, to prepare the Bigg-stubble for Rye, the Rye for Peas, and Buck-wheat, the Oats and Barley for Turneps, I must put all my Ploughs to work as soon as the first Field is cleared of the Grain, and turn my Hogs into the Stubble, to gather up all the scattered Corn, which three hundred Head will soon do. From this Quantity of Ground, if the Year proves seasonable, I may reasonably expect near two hundred Hogsheads of Tobacco, four thousand Bushels of Wheat, four thousand of Bigg, four thousand of Rye, two thousand of Oats, two thousand of Barley, and seven thousand Bushels of Indian-corn, besides fattening my Hogs on the Stubble and Buck-wheat. The Ground lies so convenient to my Barns, that I can easily get in twenty Waggon-loads a Day, which induces me to believe they will be sufficient; otherwise I can easily assist them, by putting such Rails to my Dung-carts as I have seen made use of in *England*.

The

The Secret you mentioned, for preventing the Fly, Slug, and Snail, destroying our seedling Turneps, I dare say, accompanied your Letter, published by yourself; if not, you would oblige me much, just to hint to me, and I will make use of in such a manner, that no Person, without your Consent, shall know of it, that I may try it on my Tobacco-plants, which is the only Vegetable that suffers by that sort of Fly in this Climate.

You may depend on all Occasions to hear of my Success in any Undertaking, agreeable to your Directions. I am very sensible of the Roguery of the *London* Corn-chandlers, having had ten Poundsworth of Seed at a time from Mr. *Forward*, not worth a Shilling: Therefore, as I depend much on your Integrity, I must desire the Favour of you to procure for me the following Things; and, by the first *London* Ship, I will send you a Bill of Exchange for ten Pounds to pay for them, and satisfy you for your Trouble. First, A complete Double-plough, with a Carriage, as a Sample, to make a sufficient Number for my Farm: And, that I may get into a right Sort of Seed, four Bushels of Sprat-barley; four of rathripe Barley; four Bushels of the best Sort of Wheat, for my sandy Land; one Bushel of Horse-beans; one Bushel of Rape-seed; and, if any Money remains, after a Guinea or two for your Trouble, send it in what you think most useful.

I trust in God, if I shall have my Health, I shall get in great Forwardness in one Year more; and then I shall want your Assistance to procure me a most skilful Ploughman, and a Person used to suckle Calves and Lambs, and a Dairy-maid to supply a growing Town near my Farm; in the mean time, be pleased to let me know if such Servants are to be had, upon advancing their Wages

a little, for a Term of four Years each, and their Passage paid. I would have obliged you with a Draught of my ——— Mill ; but a very ingenious Gentleman having undertaken one, I laid aside my Design, till I saw his Success ; and if his Contrivance does not answer, I shall go on with mine, and, when complete, I will oblige you. I am so laughed at for going out of the common Road, that, till I succeed, you need not expect any other Correspondent from this Colony. I am, Sir,

*Your most obliged humble Servant.*

Pray charge the Postage in my Account.

*The Character of a certain indolent Farmer, who broke merely by ill managing his Farm.*——In this Gentleman's Letter, all Landlords and Tenants of Farms may behold, in part, what is incumbent to be done by them, viz. the Improvement of their Land, by studying, after his Example, to make or purchase new and better Instruments of Husbandry, than we have in most Places at present ; the best ways of plowing and sowing a right Seed, in a manner most agreeable to their Ground, and at a time of Year most suitable to their different Soils ; the sort of Cattle that will answer to the greatest Profit ; and, in particular, how to come by the most skilful Ploughmen, and other Men and Maid-servants ; and many other things, that will turn to their greatest Account ; which leads me to make some Observations on a contrary sort of indolent Farmer, whose Character take as follows ; viz. This Farmer, and his ill Practice, I and many others knew ; for he was a frequent Subject of Talk in his Neighbourhood, because, first, he seldom gave his Land more than half Plowings, which always occasioned a rough Tilth at Sowing-time, and the Produce of wretched Crops of Grain and Grass ; for by such a rough

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four Tilth, he buried part of his Seed, that never grew ; and by not killing the Weeds thoroughly by often and good Plowings, they sometimes got such Dominion as to weaken his Crops. Secondly, He sowed his Ground several Years together, without giving it Rest to be sweetened and cleaned by Fallowing once in three or four Years ; which wore it out, and brought it into such a Barrenness, as bred the Black Bennet-weed, the Thistle, the Horse-gold, the Poppy, wild Sorrel, Chick-weed, May-weed, Cliver, and others. Thirdly, To keep down these Weeds, I have seen this very Man, with a Weed-hook, cutting up Thistles on a *Sunday*. Fourthly, By not getting his Ground in right Order, with good Plowings, in due time, he was obliged to sow his Seed later than most others, which made his Barley and his Lent-grain run into Straw, more than it would have done, had he sowed it earlier ; and at last became ripe after that of his Neighbours, who sowed their Seed more forward, to his great Loss ; because the Days were shorter, and the Nights longer, than before ; which exposed his Grain more to the Damage of Rains and Dews, and less to Drying and Hardening. Fifthly, He never full-dressed his Ground, which made him have lean Crops. Sixthly, For want of sowing Clover, or other artificial Grass-seeds, in a sufficient Quantity, his Horses, and other Cattle, were always poor ; and the first not able to plow his Ground to a right Depth, capable of extirpating and killing the deep-rooted Weeds. Seventhly, He kept a greater Number of Sheep than his Farm could maintain, notwithstanding he had a Common near him, which being every Day full stocked with other Farmers Sheep, his sixty would not bear Folding, without pining and growing lean, for want of a Bait every Day with good Grass in an inclosed Field ; for you must know this Farmer lived

lived in the Chelturn-country, where Land is not so good as in the open Field Vale-countries ; and thus he came by the Loss of most of his Flock in one Summer and Winter, that died by the Hunger-rot. Eighthly, He seldom or never changed his Seed, which now-and-then was the Cause of a smutty Crop of Wheat. Ninthly, This Farmer was so covetous of Time, that he has bound and carried his Wheat-sheaves into his Barn on a *Sunday*, by Hand-carriage, when they lay in a Field contiguous to it ; and, indeed, would do as much Work on a *Sunday* as another Day, where Shame and the Law did not prevent it. Tenthly, Where an Opportunity offered that he could pilfer from his Neighbours, and evade the Penalty of the Law, he seldom was wanting in doing it : But, at last, this Miscreant met with his just Desert ; for he run out a considerable deal of Money, and broke. For these Reasons it highly concerns Landlords to make a right Choice of Tenants, by strictly inquiring into their Character at the Place they came from ; for a bad Tenant, notwithstanding all the Covenants that can be crouded into a Lease, may do a great Damage to his Farm, by his Ignorance, his Poverty, or his Roguery : By the latter many ways ; one of which I have heretofore given a short Account of ; how a Tenant, that was obliged to quit his Farm, sowed wild Oats, in the Night-time, for Revenge, to hurt the succeeding one, and oblige the Landlord to abate Rent for the same. But when a Farm happens to be lett to an industrious, skilful, honest Tenant, he deserves good Encouragement, because his right Management is a Benefit to the Landlord, himself, and, indeed, to the Nation in general : An Instance of which I shall give in the following Account.

*The Encouragement that a certain Lord gave to his Tenants, to provoke them to practise Good husbandry.—*

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This was done by an *Irish* Nobleman, who wisely consulted those whose Province it was to know Improvements in Husbandry better than himself, because they made it their main Business to find out those Secrets that might be of Advantage to their Country ; as one of our News-papers mentions it, dated the 14th of *May* 1744. in these Words:—

“ The Right Honourable the Earl of *Clanrickard*,  
 “ designing to give one hundred and fifty  
 “ Pounds, to be distributed in Premiums, for the  
 “ Encouragement of Husbandry, to the Tenants  
 “ of his Lordship’s Estate, has wrote to the Secretary of the *Dublin* Society, to request that  
 “ the Society will communicate to him what may  
 “ be most proper to encourage, in order to raise  
 “ a Spirit of Emulation and Industry in that Part  
 “ of the Country where his Lordship’s Estate  
 “ lies.”

*The Encouragement given by the Irish Nobility, Gentry, and others, to the Dublin Society, for promoting the most useful Art of Husbandry.*——

The following Words were inserted in one of our public News-papers, viz.——“ This Week the  
 “ *Dublin* Society returned Thanks, in a public  
 “ Manner, to the Nobility, Gentry, and others,  
 “ who have so generously subscribed for enabling  
 “ the Society to give Premiums for the Encouragement of Husbandry and other useful Arts  
 “ in this Kingdom. The Sum subscribed amounted  
 “ to six hundred and eleven Pounds six Shillings  
 “ and Six-pence.

*The Encouragement given by the King of France to his Subjects, for promoting Good-husbandry.*——In another of our public News-papers are these Words:——“ It is said the King of *France* encourages it so, that he sells Corn cheaper than  
 “ we or any other can, besides finding his Army  
 “ and People.——Also, that if any one does a  
 “ Farmer



Farmer Damage, he is more severely punished here than if he did it to any other common Person. And, indeed, it is very just it should be so, since on the Farmer's Crops of Grain and Hay, on his breeding and feeding of Beasts and Fowls, and on the Fruits of his Land, &c. depend the Riches of a Nation.

*Why Farmers, more than any Tradesmen, should be protected by the Laws of the Land against the Rapine and Oppression of vile Persons.* — The Goods and Chattels of the Farmer are more than any other Traders exposed to the Rapine of Thieves, and to the Oppressions of vile Persons, because of his dead and live Goods lying abroad in Fields and Woods, and in most Places at such Distances, that they may even in the Day-time do him a great deal of Harm unknown to him : But in the Night-time they have a much greater Opportunity of doing him Mischief, either by stealing his Grain, stealing or maiming his Cattle, or pilfering his Fruits, his Fish, his Wood, or many other Things. One Example of this happened at *Gaddeſden* (as I am informed) in Queen *Anne's* time, when an idle lusty Fellow, named *Daniel Freeman*, was told, by way of Friendship, by a Yeoman of 100*l.* a Year, that it was a Pressing-time, and he would be pressed for a Soldier, if he did not keep close to work. Now it happened, that this very Fellow was pricked down to be pressed by another Person : However, the Rogue suspecting, from the Words of the above Intimation, that the Yeoman was the sole Occasion of it, he, one Night, cut the Sinews of two of his Plough-horses, as they were at Grass, in the fore great Point of the Horses Thighs, that intirely spoiled one, and crippled the other. But this Villainy availed him nothing ; for, after he had been surrounded in a House, he was forced to surrender, and was sent for a Soldier.

Another Farmer, since that, having a blind Cart-horse grazing in his Home-close, some Person, out of Malice, drove the Beast into a Dell-hole that was in the same Field, made by a former Tenant's digging Chalk out of the Earth to dress his Ground with; wherein, by the Vehemency of the Fall, the Horse's great fore-part Joint of his Thigh was so cut by Flint-stones that lay in the Bottom of the Hole, as made him of no Service afterwards. Others, out of the same wicked Principle, lame our Sheep or Cows, break our Gates, Stiles, and Hedges; and some, out of Covetousness, will steal our Wheat, as it lies in Stacks in the Fields, our Barley, our Peas, and our Beans, our Poultry, or any thing else that they can come at, and carry away, free of the Penalty of the Law. I know a Person, living at this time, that has reigned these 30 Years in getting Part of his Livelihood by stealing of Sheep; and although he has been detected, and taken several times into Custody, yet the Farmers have, for a Treat, or some other trivial Consideration, released him, and set him free again: Which served to harden him in his Wickedness; for he went on in the same stealing Trade, even after the Act of Parliament commenced for making such Thievery Felony: But if he had been sent to Gaol, and afterwards got released, they were apprehensive he would revenge their taking the Advantage of the Law against him, and so perhaps become the Ruin of a poor Tenant. — Others had rather lose their Goods than be at the Charge of going 20 or more Miles to attend a Prosecution, as it sometimes is to the Place of the Assizes. — Others will not prosecute ordinary Thieves that live by stealing Sheep, Corn, Wood, Poultry, Swine, &c. and have Families to maintain by this very Trade, lest they (being Part of the Parish) be bound afterwards to maintain

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their Families, as is the Condition of many Places in *England*.——Others, when Thieves are taken and prosecuted, and come to their Trial, they being for their Lives, no Evidence will nor ought to be taken, but what is very clear; and where it is so against one, either through Mistakes, or wilful Omissions, it is deficient against five; by which means most of those few that come to Trial are found Not guilty. Again (as a judicious Writer observes), when they are upon Trial, and the Evidence clear against them, either the Jury are tender of their Neighbour's Life, or else some good Friend or other appears, that it is found but Petit Larceny; or else the Thief has his Clergy, or by some such Shift or Means, or Evasion, he gets off; so that it may be, as it often happens, a Thief comes five or six times to his Trial, or at least to Gaol, before he is hanged; during which time he grows more subtle, and educates many others in the same Profession, and teacheth them all manner of Tricks and Devices, not only to effect their Intentions, but to avoid the Punishment.

To remedy which, if the Law is made more in the Farmer's Favour than it is at present, that all Offences committed against him should be more severely punished, than if committed against any other Tradesmen or Dealers, and he more indulged in the Charge of Prosecution than others; I humbly conceive it would be a great means to deter Thieves from doing him Damage, either by Night or by Day.——For there is no more certain and pernicious Enemy to the Husbandman's Thrift than Man himself. They rob and steal from, oppress, malign, injure, persecute, and devour one another, to the Decay of Arts and Sciences, and even to the Ruin of whole Families of ingenious and industrious Men; every one striving to build up his House, and raise his Family, by the Ruine  
and

and Decay of his Neighbours. But our only Complaint is against the common and ordinary sort of vile Persons, that live after a most sordid manner, and seek not Wealth nor Greatness, but only to maintain themselves in a most despicable, lazy kind of Life, by filching and stealing from their honest and laborious Neighbours; and against such, that though they steal not, yet oppress, oppugn, and injure those that are more industrious than themselves. — What a great Loss and Inconvenience it is to be confined to dwell by ill Neighbours! How it multiplies our Cares, and increases our Labours, and lessens our Stock and Profits! How are we disquieted at the Sight of them! And how are our Fruits destroyed, and our Corn spoiled, by them, and their Children and Cattle, who are continual Trespassers! especially if they think we are so peaceably given as to put up small Injuries, or that we are unwilling to seek Remedies worse than the Disease, against these Enemies of our Good-husbandry, and of our otherwise most happy Life.

But, to prevent these, it is to be hoped Laws will be established in the Farmer's Favour, which we humbly leave our grand Patriots to consider of; on whom we Rustics depend for good and wholesome ones to preserve our Interests; which will the better capacitate us to serve his Majesty, and answer his Occasions with our Fortunes, as well as with our Lives; and will also the better enable us to pay our Rents to them, and improve theirs and the whole Kingdom's Revenue. — In the mean time some Policy may be used to charm these Crocodiles, to make these Furies Friends; please a little their Natures, and feed their Humours in what they delight: By being thus their seeming Friends, you may command them; and they will be as ready to serve you, as to persecute another Neighbour, that less deserves, only because he uses not

the same Method of Policy. If they love their Bellies, invite them often : Be sure to please them that are most capable of doing you Hurt : Whatever they delight in, please them in it, and you have done enough ; for you know not what need you may have of a Neighbour's Help. Thieves may sometimes assault you ; sometimes you may want some particular Instrument that your Neighbour hath, without which, or whilst you go farther, you suffer great Loss ; and what a sad thing it would be to be denied ?

*How the learned Mr. Boyle encouraged Arts and Sciences.*—This honourable and justly famed Philosopher is well known, by his printed Works, to have been one of the most considerable Men in his time for his great Knowledge in Natural Philosophy, for his Piety, and for his encouraging of Arts and Sciences, &c. which last he had such a Veneration for, that he now-and-then gave twenty or thirty Guineas to Travellers for Secrets that had been well attested ; as believing that Persons of less Learning than himself had, might find out and be Masters of such serviceable Secrets that he could not discover ; at least, that such Secrets might help his greater Knowledge to improve them to a higher degree of Usefulness : So that Travellers came more satisfactorily off with him, who was a Minister of State, than *Edmund Spencer* did with the Lord Treasurer *Cecil* ; who being ordered, by Queen *Elizabeth*, to give him 500*l.* in consideration of this ingenious Person's Poverty, and of the Poem that he presented her with ; this Lord, instead of giving him Five hundred, gave him only One hundred, telling her Majesty—What ! would she give so much Money for a Song ?—This he is said to have taken so much to heart, that he contracted a deep Melancholy, which soon after brought his Life to a Period, *Anno Dom.* 1598. though he was accounted

counted the first of our *English* Poets that brought Heroic Poetry to any Perfection, and was an excellent Linguist, Antiquary, Philosopher, and Mathematician. But the first Poem that brought him into Esteem is said to be his *Shepherd's Kalendar*. And it is remarkable, that Mr. *Boyle* took so much Delight in this sort of Encouragement, that he used to say—"We may frequently learn something worth observing from these sort of Travellers."——But it is likewise more necessary than ordinary to protect a Farmer against Thieves and Insulters rather than Tradesmen, because most of the Farmers live in single Houses, remote from Towns and Villages, and therefore are more liable to be robbed and insulted.——In our Village of *Gaddesden*, because it lies three Miles distant from the nearest Market-town where a Justice of Peace lives, some of the Inhabitants are every now-and-then insulted to a very high Degree by Vagrants. I have seen one of these that begged, having but one Hand, throw a Stone with the other against a creditable Woman, because she would not relieve him; and had it hit her in some Part, was big enough to kill her: Another, with a sham plaister'd Arm, clapt his Foot between the Door and the Threshold to prevent shutting it, when he saw there was an Opportunity to get something by his Swearing, and insulting Impudence (a reigning sort of Villainy), as knowing, at the worst, it will be only the Stocks, or other light Punishment; and even this they are hardly afraid of in such By-parts, because a Constable at a Distance is difficult to get, and then it will cost a Parish considerably to prosecute these Villains. Others of them keep Dogs that will nimbly seize our Poultry for their Masters to carry off; and this they easily do, as the Hens straggle in our Fields. But it is to be hoped the Legislature, this next Session, will,

when they amend the Black Act, level a severe Law against all those Vagrants who shall in any wise insult or damage Farmers.

The Author's Answer to that Part of the *Virginia* Letter relating to Insects damaging young Tobacco and Sugar-plants; and the great Service that the *American Gentleman's Engine* may do to *Britain*.

*Little Gaddesden, 30th June, 1744.*

S I R,

**Y**OUR Letter of the 17th of *January* last I received on the 22d Instant; and among its many Articles find one, that in particular you desire to be resolved in: And, indeed, this your Curiosity has led you into a Matter of the greatest Importance; such a one that I should not impart, was it not that I know you to be a Person of Justice, Honour, and Generosity: And therefore, without hesitating, I am very proud of this Opportunity to pleasure you with one of the most profitable Receipts I am Master of; and that you may enjoy it with the greater Expedition, I have taken this early Opportunity to convey it to you, in hopes it may do you many hundred Pounds worth of Service, in securing your young Tobacco-plants from the Damage of the Flies, which in your hot Country I should think are more than ordinary liable to commit their Rapine, and spoil your Crops, while they are in their Infant Growth. However, this will infallibly secure not only your Tobacco-plants; but likewise Crops of Turneps, Rapes, Flax, Hemp, artificial Grasses, or any other Field-vegetable, and all manner of Garden-ware, from the Damage of the Fly, the Slug, the Shell-snail, the Worm, &c. while in their first and tender Sprouting; and, at the same time it is thus acting the

the Antidote, it will become a fertile Manure for any Ground it is laid on. It is no Powder, may be had at any time of the Year with you, and is a cheap Ingredient that will withstand the Power of Rains; for if they fall, presently after its Application, for a Week together, it will still have the desired Effect, provided it is laid on soon enough: Which Secret I am willing to impart to you, upon this Condition, That, if it answers my Pretensions, you will pay me ——— otherwise nothing; which is putting the Matter on so fair an Issue, that I hope there is no room for Exception. And I do assure you, I have thought this Secret of such high Importance, that I never yet discovered it to any more than two Gentlemen, one of whom lives in *England*, the other in *Antigua*; for the latter, I delivered the Receipt to ——— Esq; a great Merchant in *London*, who sent it about six Weeks ago to his Correspondent, for securing his Sugar-plants from a certain Insect that breeds in the Ground, and after some time acquires a sort of Shell-wings, that makes it the more capable of doing Mischief in less time than if it had none; for which Receipt he has given me his Word of Fidelity, that I shall not only receive ——— from his Correspondent; but a Contribution from all the Gentlemen in the Island, if it answers the Purpose. Upon the same Footing I send the like to you, that in case it does the Feat, and if any other Gentleman in your Parts make use of it with the like Success, then I hope you will be so much my Friend as to endeavour a like Contribution from them; who, I am persuaded, are Persons ready to encourage serviceable Arts and Sciences, as they enjoy what they now do partly by Improvements formerly made in Agriculture; to which Art I have not a little added, as by its present Practice in *Europe* plainly appears. And I hope to be further instrumental in this profitable



fitable and boundless Art, by sending into the World twelve more Monthly Books of Husbandry, which I have now begun, and finished the first ready for the Press, that are to be as voluminous as any of my former Monthly Books were; for I am, by one means or other, almost daily learning Improvements of one kind or other, by Correspondents, and my own and Neighbours Practice, &c. The Receipt is as follows, viz. \* \* \* \* \*

\* \* \* \* \* ——— Now although this Ingredient may appear at first a trivial and common one, even as Soot in time past, through Ignorance, was thrown away to Dunghils; at this time it is found to be of such Efficacy, that the Assurance of a Crop of Turneps, &c. was never rightly given, till this was discovered, and made use of, which, when publicly known in *England* and elsewhere, will do infinite Service. Nor is it to be wondered at, that sometimes the greatest things are seen to be produced by the most common, as Bishop *Berkley* justly observes in his Treatise on Tar-water lately published; where at *Pag. 11.* he has these Words:——“ The Folly of Man rateth “ Things by their Scarceness; but Providence hath “ made the most useful things most common.”—

And a happy Discovery this is; for in some Years most of the Turnep and Rape-crops in particular have been ruined by the Fly and the Slug, notwithstanding Farmers have *re-sown* the Seed two or three times in one Season. And (what is also very valuable in this Ingredient) it does not taint nor burn the Vegetable, like Soot or Lime; nor is its Virtue to be washed out, like them or Tobacco-dust, Malt-dust, or Oil-cake-powder; nor are its Parts smoothed by the repeated Fall of Rains, and rendered ineffectual, like them or Chaff; but will retain its Virtue a long time in all Weathers.

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As to your Cart-machine to sow Dung and Corn, and harrow them in at the same time, I like it extremely well; but then it must be a sort of pulverized Dung, such as the *Kentishmen* for the most part make use of, by digging up Mould under or close to their Hedges, or elsewhere, and mixing it with long Dung out of Yards, Stables, Cow-houses, and Hog-styes, and with small Chalk or Lime. This, by turned Incorporations with Lime, will be reduced into a short Body, fine enough to be sown, and spread out of a Cart, and worked by Harrows. It is certainly doing the thing in the greatest Perfection, because it will sow Seed and Dung, and work all in a regular manner; and I think is perfectly necessary; for there are thousands of Quarters of Corn lost in one Year by the Application of long Dung, that choaks the Seed, and hinders its coming up, and which cannot through its Bulkiness assist all the fine thready Roots of the Grain, which a finer Sort will; and will not smut the Wheat-crop, like raw long Dung; for Dung, thus managed in a right manner, may be said to be cured. Seed also sowed wrong, is the Cause of great Losses. If, therefore, you think fit to send the Model over, I shall execute your Orders in the exactest manner I can; and give you my Promise, I will take no Advantage of it to your Prejudice, but do all I can to promote your Interest, who so justly merit it.—The new-fashion Dairy-tackle may be of Use to you; and, in time, I hope to oblige you with an Account of an improved Cart or Waggon. You should have another sort of Drill-plough, and another sort of Horse-break, sent you over, than that you have already, for very good Reasons; as likewise the Turnep-sheim, a Marsh or Bog-plough, a Trenching-plough, and the new-invented Swing-plough, that your large Farm may be completely furnished;

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for upon the Variety of Instruments of Husbandry depends the main Part of the Farmer's Profit, because he can employ a Tool according to the Nature of his Ground and the Weather. But so far as you have proceeded turns my Respect into Admiration, to find you so inventing and penetrating into Improvements, and reposing a Confidence in me a Stranger; when our *English*, that have far a better Opportunity, neglect many of the main Things needful to theirs and their Posterity's Interest. Surely this dull, supine Spirit of Indolency reigns more in *England* than in some other Countries. We have no Occasion to send to *Russia* and *Italy* for Flax and Hemp, to *France* for Wine and Brandy, to *Norway* for Deals and Masts, nor for many other Things into foreign Parts, if we would more study and practise Improvements at home: But so far from this, that even I, who have done, and am like to do more, considerable Service to my Country, am forced to sell my Copies to the Bookseller for a Song, because I cannot come by better Encouragement; for I could never meet with any Bookseller in *London*, besides Mr. *Osborne*, who would give me so much as five Guineas for each Monthly Copy, that I am generally three Months about composing, and writing fair for the Press, where he has 750 of these Books printed from each Monthly Copy, that he sells for 2 s. a-piece; and this chiefly because they are so ignorant of a Book of Husbandry as not to know its Worth; and it is this Bookseller's mean Price, I must own, that cramps the Sinews of my Endeavours for the public Good, in a great degree.

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The Copy of a second Letter from *Virginia*.

S I R, *Virginia, June 6th, 1744.*  
**I**nclosed I send you a Bill for ten Pounds, according to my Promise, to be applied according to my Letter sent this Spring. I have not time to add, but that

*I am your most obliged Servant. —*

This honourable Gentleman, as well as some other Gentlemen-planters of *Virginia*, and *New-England*, I have just Reason to praise for worthy, honest, generous Gentlemen, as by their ingenious Correspondence, and punctual Payments to me, they have made it appear; and I would take their Words of Honour with as much Satisfaction as I would any other Gentleman's in *England*: And it is my real Belief, that if any Man or Woman, Boy or Girl, thinks it their Interest to go over for four Years into either of these Colonies, they may as surely depend on the Veracity of any of these Gentlemen's Promises and Agreements, as on any made by an honest Gentleman in *England*; and for which their Service they will give great Wages, and good Usage, while they live with them in these temperate Climates.

C H A P. III.

*Of Meadow-Ground.*

**T**HE Damage that Meadow-grounds are subject to, — There are two Sorts of Meadow-grounds, the Upland meadow, and the Vale-meadow, &c. The first is generally freer from Moss, Rush, and other Excrescences, than the last; yet

both Meadows, as well as plowed Ground, are quickly ruined, if not husbanded. The Upland-meadow, tho' less subject to run into Moss than the low wet Sort, will acquire this foul and most prejudicial Weed, if Means are not used to prevent it ; for all sorts of Grass-grounds will, more or less, moss, as Iron rusts ; and the more, if it is every Year mowed, and not dressed ; because Moss grows the closest together of any Vegetable ; its Roots miss hardly any Part of the Ground that they do not draw Virtue from, to nourish their Growth ; which consequently must starve the Roots of the Grass, where this ill Neighbour reigns Master, and gets the Dominion ; which reminds me of a bad Husbandman's Management in this respect.

*How an Upland-meadow was spoiled by Moss.* — This upland inclosed level Meadow I knew very well, and that its Grass was ruined merely by Bad-husbandry, because it was occupied by its careless idle Owner, with several other Fields of plowed Grounds ; who, indeed, was a perfect Sot, as his Behaviour at an Alehouse in particular proved him to be ; for here it was notoriously known, that he would commonly sit and drink in such a covetous manner, as to tell another in Company it was his Turn to drink, before it really was ; which Course of Life led him into such Neglect of his Farm, that it soon run to Ruin ; and, indeed, at last ruined him ; for his Farm was sold to pay his Debts. But, a little before this happened, to clear off the Moss this five Acre-field had acquired, that grew so high as to reach up to the Ancles of a Person that walked in it, he got a Bull to be baited in this Meadow, to kill the Moss by its Trampling, and that of the Dogs and Men. But this, though it might be said to check it, did not near cure it ; for the Moss grew and increased so powerful, as to cause

cause this Field to return no more than half a Load of Hay, in all, in one whole Summer.

*How three hundred Acres of Grazing-ground were over-run with Mole or Ant-hills; and how another fine Vale Grazing-ground was in the same Condition; and how they were both cured.*——The first of these that I have heretofore mentioned, was the sad Case of Part of a most large noble Park, situated about eighty Miles distant from London, where 300 Acres were over-run with Mole, or Ant-hills; some single ones of which were a Cart-load; for as these are commonly first made by the Moles, and afterwards possess'd by innumerable Companies of Ants, they by long Possession increase them to a prodigious Bigness; and stood so close together, both in this Park and in the Vale-meadow, that there was hardly any vacant level Ground between them. Upon this the Lord's Steward applied himself to me for a proper Plough, to cut up and destroy these Ant-hills; and, for only twenty Shillings, I helped him to a complete strong one, made by a rare Workman, after the newest Fashion, that effectually answered his End, by clearing the Park, in a little time, of these pestiferous Hills, that poisoned the Grazing-ground; for where these grow in abundance, there is but little Grass on their bald Heads, and not much on their Sides; and that, as is very probable, may be unwholsome to the Beasts, as the Dung of the Ants, with their Piss, is mixed among it. So that the Lord and his Ancestors must have sustained a very great Loss by this means, because they certainly lost vast Quantities of Grass or Hay, in so many Years that these Hills have been making, which they would otherwise have enjoyed, had the Place where these stood been a clear level Grass-ground, as now it is made, by the main Help of this excellent Ant-hill-plough; that does more Work in one Day than twenty Men can

can do. Thus both these Grounds were cleared of these odious Hills; which when I behold in any inclosed Place, I am ready to believe the Possessor to be a very negligent Person, or a very ignorant one; but those that take them away, and cure the Ground of them, to be as diligent and wise, because they do not grudge to lay out a Penny to get a Pound, which, in this respect, may be justly said of such. But the Work does not end here; the plowing and cutting up of these Ant-hills by this Plough, with the Help of another cheap Instrument, was not all the Cure. After all these were cut through, Men with Forks and Shovels laid the Earth in Heaps in this Park, to be burnt to Ashes: Then Grass-seeds were sown over all the Ground, and harrowed in, and the Ashes sown on them; which not only nourished the sprouting Grass-roots, but bred a Honeysuckle-grass beside; so that in two or three Years time the Place, where these nasty foul Ant-hills stood, became full furnished with a most excellent Grass. But tho' this Lord's Steward took the Method of burning his Ant-hills into Ashes, to improve the Ground by them, the other Lord's Ploughman did not; for here, after the Ant-hills were all plowed, and cut from the Surface, Men followed, and with Forks and Shovels laid the Earth in such large Parcels as rotted in time; and, when rotted enough, it was spread over the Ground, to encourage and assist the Growth of young Grass, that naturally and spontaneously came up. Thus both Places, that lay above a hundred Miles distant from each other, were intirely cured of these great old Ant-hills, and the Ground thereby brought into a fine level Condition, whereon grew afterwards the best of Grass. Since which another Lord has done the same, by sending for one of these Ploughs, and clearing his Park in *Oxfordshire*, by it, of those Ant-hills that have,

have, time out of mind, been increasing ; and now enjoys the Benefit of a great deal of good Ground, that before lay waste. And yet for all this, and the public Notice that I have given in my former Books, that I furnish this Sort of Ant-hill-plow to any Person at a very cheap Price ; there are many thousand Acres of Ground still most shamefully stocked with these Ant-hills, that do not yield their Owners a Quarter of that Profit that they might enjoy, if they were served as the aforesaid Lands were. How stupid, then, must these Persons be, and wanting to their own Interest, who let their Land lie so abused by such Ant-hills, and yet may be thus easily cleared of them ! Surely, if it was only to avoid the Ridicule and Censure they justly bring themselves under, from passant Travellers, for letting such a wild Sight of filthy Ant-hills appear to them, one would think it enough to incite them to remedy this great Evil in all haste ; for where many of them lie exposed (as many do in Grass-grounds but a few Miles off *London*), the common Question is, Whose slovenly Ground is that so over-run with Mole-banks, or Ant-hills ? But as I have formerly wrote on this, and the Weeds that by ill Husbandmen are suffer'd to grow in Meadow-ground, I shall say the less here, and proceed to give some Account of the better sort of Management, relating to Grass and plowed Lands.

*How a Gentleman improved his Meadow-land.*— This Gentleman, being obliged to take his large Farm into his own Hands, had a certain low Meadow, that contained fourteen Acres, which had a Pond in the Middle of it, that served as a Receptacle for receiving all the Waters, that might otherwise stand and hurt the Grass ; so that there was here no Occasion for any subterraneous Drains, except such as lay always open at top, of about a



Foot deep, and a Foot wide, that served to carry the Waters from all Parts of this Meadow into the Pond; and, when this was full, there was a Conveniency made for the overplus Water to go off into a lower Ground. This Meadow being thus always kept dryish, it did not suffer by Inundations: However, the former Tenants would not be at the Charge of assisting this Field with any Dressing; but kept every Year mowing it, till indeed they had much impoverished it, notwithstanding it naturally was a very rich Soil. The Landlord, finding it in this poor Condition, and having a Pot-ash Kiln near him, bought great Quantities of this Manure, which, in *April*, he had thrown about this Meadow with a Shovel; but, a dry hot Summer succeeding, it did little or no Good: But the next Year, and for several succeeding ones, it produced vast Crops of excellent Grass.

*How a Tenant improved a Meadow.*—A Tenant, a very industrious diligent Man, who rented a Farm of ———, Esquire, in *Hertfordshire*, having a Three-acre Grass Field that produced little else but Weeds, by reason of the Waters that frequently lodg'd on it, cut a Drain through it about two Feet deep, as narrow as a Man's Wrist at bottom, but wide at top, with a Shelf on each of its Sides; this he fill'd up with Bushes, Pea-straw, and Mould; and then gave the Whole only one Ploughing, and harrowed in Wheat-seed; and, by the best Account I could learn of his Success, he had Fifty-five Bushels of Wheat, in Return, from each Acre. This improved Field I am ready to shew to any Gentleman that thinks fit to have me wait on him to it: And it is in this Part of our County, where the best Workmen in *England*, for draining Lands, are thought to live; for from hence they are sent for to Places at a great Distance: And, if  
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any Person has occasion for these Workmen, on timely Notice, I can help him to them.

*How they drain plow'd Lands in Hertfordshire.*— There is a Part of *Hertfordshire*, that lies very low and wet; infomuch that their plow'd Grounds are hardly worth half a Crown an Acre, and some of their wet Meadow but little more. This put them upon an Invention to better their Case: And one of their Gentlemen, of a good Estate, having made great Improvements, by cutting Drains in such Grounds, his Example is now followed by others. In my former Works, I have published something of this; but now I will be more particular: Here, they take a Wheel or Foot-plough, and make as deep a Furrow as they can with it, which saves some Charge of digging with the Spade; then the common Spade must be employ'd in digging down one Spit-deep; and, with another narrow Spade, they dig down another Spit-deep: Next, they make use of an iron Scoop, about three Inches broad, to take out the Bottom-Earth; so that the whole Depth of the Drain, or Trench, will be about two Feet and a half, or hardly so much, as the Situation of the Ground will admit of. When this is done, they take Blackthorn bushes; and, though some of them are as thick as a Man's Wrist, they'll ruck them into the Bottom of the Drain, as light as possible, to tie about a Foot thick. On this they lay Wheat or Pea-straw (but the latter is best) to the Thickness of three or four Inches; then they fill all up with Mould, and plow over it: This will last twenty Years good; but Wheat-straw not so long. In this Sort of Work, they are forced, sometimes, to cut several Drains; some short, some long, and sometimes across, to run the Waters into the main Drain, all in a sloping Posture, for carrying them off into some Pond, or Ditch, in their own Ground; for the Waters must not run into a

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Neighbour's, without Permission; though it sometimes happens, that a Neighbour's Ground becomes accidentally drained, by thus making Cuts in another's. They generally begin to do this Work in *April*, and continue it all the Summer; but their Meadow-ground, sooner or later, as Convenience serves; if the last, the Difference is only in laying down the Turf at Top, and the Mould employ'd somewhere else.

*How a Gentleman in Buckinghamshire improved a low wet Meadow-ground, by draining it.*—The Ground, that I am here writing of, is the same, where the Ant-hills were plowed up, and let lie in Heaps to rot; and, after they were sufficiently rotted, the same was carried about, and spread over the Meadow: After this, they dug Drains; and the Earth, that came out of them, was likewise spread over some part of the Meadow; all which served to thicken the Ground, as well as dress it; for here the Springs lie very high, which made the Roots of the Grass the more liable to be chill'd by the Waters of those Springs, and the Ground more subject to breed Moss and Weeds. This proved to be an excellent Piece of Service to the whole Meadow. And, to complete the Work in the greatest Perfection, they cut several Drains in the same, three Feet deep, six Inches wide at Bottom, and three Feet wide at Top, leaving a Shelf of Earth about the Middle of each Side of a Drain. When this was done, as the Gentleman always kept a large Pack of Hounds, the Botes of Horses Heads, that were killed for them, they put, with others, into these Drains, and Bushes upon them, then Mould, and, last of all, Turf; so that the whole inclosed Meadow, in one Year's time, appeared a fine Grass-ground, that yielded the best of Grass; because it never was flooded afterwards, as it was formerly, when, by Inundations of Waters,

ters, this Place used to lie covered by them, in long and very rainy Seasons; for the Waters were, by these Drains, all carried presently off into a small River, that ran not a great way off it. Nor could the Springs annoy this Ground as heretofore, by reason the Swell of their Waters was likewise drain'd off as the Rain-waters are; so that now the Meadow seems to lie as dry as an Upland-meadow does; and may be said to be as rich Ground as most are in *England*, for fattening Oxen and Sheep; and some are, every Year, fatted accordingly: For this Meadow contains about an hundred, or more, Acres, lying within four Miles of my House; and which I am ready to shew any curious Gentleman, that has a mind to be satisfy'd of this great Improvement by ocular Demonstration.

*How a Gentleman improved his Meadow-grounds, by turning the Water of a Rivulet into another Course.*

~~-----~~ This Piece of Husbandry ought to be made use of, where-ever Ability and Conveniency will admit of, as being the cheapest and most profitable Way of obtaining the greatest Crops of Grass in the driest Seasons. About the Year 1737, a Gentleman undertook to water, and otherwise improve, two of his Meadow-fields, by means of a Rivulet that ran through his Ground: And, in order to do this effectually, he built a Sluice of five Feet wide, at the Head of these two; and made Ditches, one on each of them: By which, on stopping all the Water at the Sluice, he diverted the natural Course of it, that used to run through the Middle of the Meadows, and made it run constantly into the two Side-ditches; and, when he thought fit to water his Ground, he open'd the Sluice; and thus water'd a hungry gravelly Grass-soil. The Dimensions of the Ditches were, in some Places, four Feet wide at Top, one at Bottom, and four Feet and an half deep: In other Places, according as the Situation

of the Ground would admit of. I know there have been several Inventions, for this Purpose, of watering Meadows; as the *Persian* Wheel, the horizontal Windmil, the Wheel of Buckets fixed to Chains, the Perpetual Screw, &c. But these are so chargeable, on account of their making, and looking after, that, unless there be a very great Necessity, and a great Conveniency for it, none will use them; whereas this Way not only serves for watering Meadows, but, at the same time, proves the best of Fences to the contiguous Grounds, as well as these: And, after the Ditches are once made, with cleaning them, they'll last for ever. And thus, by watering these Grounds (especially when Waters are thick), there will remain a fat Soil behind, composed of the Sediments of the Waters, which, in time, will produce the richest of the Grass. For this Purpose, some allow Overflowings to be best done in Winter; others, not till *March*; and then, only for three Days together, at most, at a time; for, if the Water lies too long, it will cause the Grass to turn yellow, and rot; or, if Cattle go in, before the Ground is dry, they will do Damage. On this Account, some are so careful, as to flow their Meadows in the Night, that they may dry the sooner in the Day; and, in this manner, will water them once a Week or Fortnight, in hot parching Seasons. Another Benefit arising from making such Ditches, and diverting of Waters, is, that the Earth that comes out of them may be employ'd in filling up the Parts where the Water formerly ran, and levelling the rest of the Ground, so as to make it lie in an even Posture, the better for lodging the Waters in a due Proportion. But I should have said, that the Earth that came out of the Ditches, and the Parings of the high Parts of the Ground, that were laid to make all level, was plowed; and the Fields were sowed the first Year

Year with Horse-beans, the next with Wheat, and the next with Oats, Raygrafs, and Clover : After this, it lay, to become a natural Sward : And, to supply these Meadows with Water, for Cattle to drink at, a Pond, or Ponds, may be made to be fed by the Running-waters of the Ditches, if the Springs are not sufficient for that Purpose. This is the most profitable Way, of all others, for improving 'low Meadow-grounds ; even so profitable, that, by such means, a poor Soil is converted into a rich one, and the Owner made to enjoy the biggest of Crops of Grafs, when his Neighbours Upland-meadows are parched up by the scorching Sun, that sometimes wholly deprives them of this Advantage.

#### C H A P. IV.

##### *Of Boggy and Moory Grounds.*

**A**S this is the principal Time of Year for curing boggy and moory Grounds, by subterraneous Cuts and Drains, &c. I shall here employ my Pen in writing on the same ; and give an Account, first, of

*Mr. Blyth's Opinion, what is the first Occasion of Bogs.* ——— Where-ever (says he) is a Bog, I am confident was formerly a Spring ; which Spring, running and venting itself, kept the Land round about it sound and dry, as where most clear Springs are at this Day : But the said Spring stopping up, either with Leaves, or Cattle's feeding, or Wood falling upon the same, or other Filth (for, I believe, many, or most Parts of this Land were very woody in former Ages), the Spring was stopped, that it could not clearly vent ; and so, being a living Water, would not be suppressed, or buried, but

but swells and boils up into Bogginess; and so vents itself, by little and little, in a greater Compass of Land, because it cannot break forth clear together in a lesser, because of the Pressure and Weight of the Earth upon it: And this is the most natural Cause thereof that I can gather; and my Reason is this: In many Bogs (I will not say in all) I have found great Pieces, or Boughs, or Bodies of Trees, lying in the Bottom of the Bog, four or five Feet deep, in the full Proportion of a Tree or Bough, as it fell in; but, when you come to take it up, you may cut it with your Spade, just as you do your Earth, and it goes to Earth: But how this should come so low, and lie so deep, and so familiarly, in Lands of this Nature, and not as frequently upon sound Lands, I cannot conceive. But, of Bogs, I shall be more particular in the following Account.

*The Copy of a Letter from a Gentleman to the Dublin Society, shewing how Bogs may be improved into Plantations of Hops.*——

Gentlemen, few are so far Strangers in this Matter, as not to know, that, among the several kinds of Bogs, the red are deservedly esteemed the worst. Black Bogs yield some kind of Pasture, of a finer or coarser Grass, according to the Nature of the Bog: They are, besides, more easily reclaimable; and if the upper Surface be skimmed off, and the Sods burnt, they afford their own Manure, a large Quantity of red heavy Ashes, strongly impregnated with Salts; whereas the red Bog has none of these good Qualities. It has a spongy, light, fungous, variegated Surface; bears no Grass; and, when you come to burn it, yields but very little Ashes; and even those, white, sleeky, light, and insipid. This is so well known, that these Bogs are never charged with Rent, but thrown into the Survey of Farms, as unprofitable Lands. I have indeed reclaimed some of this Kind of Bog in a different Manner,

and for other Purposes, than for Hops ; and therefore cannot join in calling them unprofitable : But, since they are generally so esteemed, and, accordingly, neglected ; it will be of equal Service to my Country, to promote the Culture of them under Hops, as if they were really so.

As one Letter cannot contain all I have to say upon this Subject, you'll give me Leave, Gentlemen, to confine myself in this to the Manner of laying out the Ground, and to reserve the Planting of the Hops for the Subject of a second. Should I crowd the Whole into the Compass of one Paper, my Directions could not be particular, as they must be in Essays of this Kind, to be useful to the Farmer. There are, in the Execution of any new Improvement, many little Circumstances, which alleviate the Labour, and lessen the Expence ; and, though they may appear trifling upon Paper, they are, however, of considerable Importance in Practice. These I shall take Leave to observe, as I go on ; being less concern'd for Elegance and Neatness, in a Performance of this Kind, than for the Ease and Advantage of the Husbandman.

Round the Spot intended for your Hop-plantation, dig a Trench seven or eight Feet wide, to drain off the Water, give it all the Depth the Fall of your Bog will bear ; and, if you cut it into the Gravel, it is the better : Make your Trenches strait, and every-where of an equal Breadth : To that end, lay them out, and mark them by a Line : The Score, or Mark, is made in Uplands with the Spade ; but, in Bogs, a Hay-knife is much better. One Man will cut faster with this Instrument, than five in the common Way.

When that is done, take off the first, or upper, Sods of your intended Trench with the Spade ; but beware of cutting your Sods too large ; they are then inconvenient for Carriage, and increase the Labour



Labour of removing them. Make them of that Size, that they may be easily turned up, and thrown with Pitchforks on a Wheelbarrow; you may then, at a small Expence, convey them where they may be useful. The proper Use of them is to fill the adjacent Bog-holes, and level the uneven Places of your Bog. However, it will be necessary to reserve a few of them, for facing your Ditch in the same Way as you do Upland-ditches.

When the first Sod is pared off, proceed to dig your Trench with Slanes; the Soil thrown up will be as good Turf as any other, and defray the Expence of Trenching: And this I desire may be understood as a general Direction, and applied wherever a Trench, or Hole, of any Size, is to be cut out in a Bog. By this Means, the Charge of Digging is made up to the Farmer in good Turf, and the Labour pays itself.

In cutting your Trench, be careful to leave a Gun on each Side of your Plot: This is a Piece of Bog uncut, design'd as a Passage in and out, with a Chancel for the Water bored in it; it must be nine or ten Feet wide, and the arched Chancel under it of sufficient Height and Breadth to let the Water through. In short, a Gun is a natural Bridge, and must have the same Qualities, Strength in the Arch to afford a safe Passage over, and Wideness equal to the Discharge of Water. Two Men with Spades, or Shovels, thrusting from each Side till their Tools meet, will make one in a little time.

There is another Circumstance to be observed in the making of your Trench: At the lowest Part of it, where the Water is discharged, leave a Bank of two Feet high uncut, to keep it to that Height in the whole surrounding Drain. By this means, you have a Reservoir at hand, for the Use of your Hop-plantation; which, whenever a dry Summer happens, will require to be well watered; and, besides,

rides, a ready and cheap Manure from the Sludge, or Mud, which will lodge at the Bottom of your Trench, when the Current is check'd by this little Bank. Some, indeed, may fear, that the inclosed Ground may suffer by this Method, and be kept too moist by the Water about it: But this, I am by long Experience satisfy'd, is a groundless Apprehension. The flowing Water, with a fair Vent before it, has little lateral Pressure; but directs its Way where it has the most free Passage. I have made large Drains in a Bog, and kept them full of Water, within a Foot of the Brim, and found no Inconveniencies attending it.

When your surrounding Trench is finished at four Feet Distance from the inner Edge of it, and exactly parallel, draw another inside Trench of two Feet wide, and two Feet deep; let it be drawn, like the former, round the Ground, and by the Line; then fill it up with proper Soil, and plant Sallies in it, or any other Aquatics, fit for Poles: They will thrive here exceedingly; and, with proper Care, in six Years time, be ready for the Use of the Hop-plantation. The Earth about them is kept moist by the Bog about it, and their Roots preserved from Frosts and Winds, by the Distance of their Stand from the Edge of the main Drain; and therefore nothing can prevent their Growth. To forward them as much as possible, two Cautions should be used: The first is, to strip off the Side-shoots, when tender, to prevent their running into strong Branches, which impair the Body of the Tree: The second, to throw up the Mud out of your Trench upon their Roots; and that way to supply them with fresh Nourishment. This should be done, when your Sallies are two Years old; at that time, and in the Heat of Summer, cut the little Bank which keeps up the Water in your Trench, and leave the Drain intirely dry; the

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Mud at bottom will grow stiff, and be easily thrown up, and your Trees manured with very little Charge.

*A second Letter, shewing how to raise Hops in Bogs.*  
 —When you have prepared and inclosed your Bog, in the manner described in my former Letter, at fifteen or twenty Feet Distance from the Sally-trench, stretch a Line parallel to any one Side of your Inclosure. To this Line tie Rags, or Feathers, nine Feet asunder from each other; and when your Line is stretched upon the Ground, at every Mark, or Feather, drive a sharp Stick into the Bog, to determine the Centre of your Hop-hills. Having finished your first Row, remove your Line to nine Feet Distance, and mark out a second; from that proceed to a third Row; and so on, till you have finished the whole Plot. The Ground being thus set out, and the Centres of your Hop-hills regularly disposed, at nine Feet Distance from each other, your first Work will be, to dig a Hole at every Centre, three Feet wide, and three Feet deep; to lay the upper Sods of it in the Hollows of your Bog, and to make Turf of the remaining Soil. If you proceed in your Work that Summer, your Turf must be wheeled off directly, spread and made upon other Ground; otherwise it would prevent the Passage of the Tumbrils (Carts), which you have Occasion for in your next Business. This is to fill your Holes with proper Earths, or Composts, in order to receive the Hop-sets, which are to be planted here, and afterwards managed in the same Method as in other Places. To do this, it is obvious, that much Earth will be wanted in a Plantation of any considerable Size; and how to provide himself with a sufficient Quantity, at a cheap Rate, is of great Importance to a Farmer. My Method is as follows: In the Upland, nearest the

the Bog, I take off the Sward of a small Plot with the Hoe, or Winged-plough; I burn it, and, by thorough plowing, mix the Ashes with the Mould. To these I add a little Lime, rotten Dung, or rich Garden-mould, and throw the Whole together into Heaps, where it heats and rots, and, in a little time, affords the richest Compost, and the best Soil for Hops. I have made artificial Earths in this Manner, not only for the present Purpose, but in other Improvements also; and found it, upon Trial, a great deal less expensive than it appears at the first View. The Carriage of them to the Bog is the heaviest Article in the Expence; and this also is much alleviated by the Breadth of the Alleys, and the Method of planting the Hops in Holes. As the tough Surface of your Bog is no-where broken, but in the very Spots where the Hops are planted, it affords a safe Passage for your Cattle; and as your Walks are six Feet wide, the Hills being but three Feet over, and the Centres nine Feet distant, you may make use of Cars and Tumbrils, a cheap and commodious Carriage.

I own, that, notwithstanding these Precautions, this Improvement is expensive; but raising Hops, in any Ground, is so; and, I am sure, greater in the most favourable upland Situation, than in a Bog. A little Arithmetic will shew, that Ditching and Inclosing, which, in a Bog, is no Expence; the Turf, made at the same time, being equal to the Charge; that Ploughing, Harrowing, Fallowing, and Digging, which, in my Method, are intirely saved, with the additional Articles of dunging, hoeing, and paring the Alleys in Uplands, are more than an Equivalent for all the Labour and Expence attendant on Bog-hops; and, from fifteen Years Experience, I can venture to affirm, that the Produce from the latter is as great in Quantity, and in Quality as good. Many Reasons might be given,

why it should be so ; some of them I beg Leave to lay before your Readers: They may be necessary to remove the Prejudices which generally attend new Projects; and to make this new Improvement as common in this Kingdom, as, I am sure, it will be beneficial, whenever it becomes so.

Were it peculiar to my Method, I should reckon the first Advantage of it, that the Hills stand at nine Feet Distance; but, as this may be imitated in Uplands, I shall only say in general, that nothing is more prejudicial to Hops than close Planting.

The Care taken in Uplands to hoe and pare the Alleys, sufficiently shews, that it is esteemed a Disadvantage to have any Quantity of Grass growing among Hops: Red Bogs are, by their Nature, free from this Inconvenience; and, at least for many Years, till the Surface is intirely altered, throw up none, or very little. How far Planters are right in their Opinion, that a Coat of Grass impairs the Action of the Sun upon the Fruit, I shall not here examine; but, while that Opinion holds, it will ever be a Reason in favour of Red Bogs.

Watering of Hop-grounds in dry Seasons, tho', from the great Expence attending it, too frequently neglected, is certainly of great Benefit to the Crop. This may be done in Bogs, with great Conveniency, and little Charge. The surrounding Drain is a constant Reservoir where the Planter may be readily supplied; and whoever understands the Culture and the Growth of Hops, will reckon this no small Encouragement.

'Tis agreed, among Hop-planters, that low Grounds have great Advantages; they are little exposed to Droughts, and sheltered, by the Situation, from destructive Storms. Bogs enjoy those in common with the rest, besides, as long Experience has informed me, some peculiar to themselves: They do not suffer so much as other  
Flats

Flats by the Rains of a wet Season, or the Mildews of a dry one. Whether their Spunginess afford a Passage to the Waters which lodge in other Grounds, and their constant Moisture prevents the bad Effects of too much Heat, I shall not now examine : But the Fact i self is certain : They are free from the Inconveniencies above-mentioned ; and, what is more remarkable, from those Swarms of Insects which too often infest upland Hops.

I must add, that in this kind of Planting, the top Roots have Liberty to shoot as far as Nature designed they should : They have three Feet of the richest Soil to go through, before they run into the Bog ; and even there, when once it is well drained, they will meet with better Juices than in a cold stiff Clay, or a sharp four Gravel, which are the common Upland Bottoms.

I shall conclude by obviating a Doubt, which, perhaps, might occur to some of your Readers. Poles will stand in these Bogs as firm as in Upland Ground. The Earth laid into the Holes, pressed together, and confined by the tough stringy Substance of the Bog, will sufficiently support them, and they need be sunk no deeper than Improvers direct in other Hop-plantations.

To this Letter were added the following Observations.

*Observations on the foregoing Letters.*——We cannot dismiss the Reader, without observing to him, that it were to be wished many Gentlemen would employ their leisure Hours in the Country in the way of our ingenious Correspondent, in making Experiments, and attempting new Improvements. That in which he has succeeded, was certainly as unpromising as any other ; and affords Encouragement to explore (searching out) more of those untrodden Paths, which we find lead to

to private Profit, and public Wealth. Black Bogs promise better than the Red ; and since these turn to so good Account, why should we not try the other ? Or, if we are unwilling to run Hazards, let us at least improve, where we do it with more Safety. We do not want good Land to employ our Industry upon ; and if so much can be made out of the worst, what may not be expected from the best ?

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## C H A P. V.

*Of Ploughs proper for Bog-land.*

THE Copies of the two following Letters were partly the Occasion of my inserting the two former ones sent to the *Dublin Society*, because they relate to Bogs, and that in a momentous Manner. For though a Bog may be drained to the Purpose, and be thereby fitted for being improved with Grain, or Hops, or artificial Grasses, or Plantations of Trees, or Woods, &c. yet, that such Land may answer this great End, it is perfectly necessary for their Owners to be Masters of those Ploughs, and other Instruments of Husbandry, that are agreeable to the Soil of such Bogs : And herein the *Irish Gentleman*, that desires my Advice in this respect, shews himself to be a Person of a right Genius, as being sensible of the great Importance a right Tool is, for discharging the Culture of such Land in the cheapest, easiest, and truest Way ; and for his Opinion, that if there be any Ploughs good for that Purpose, they are to be had in *England*, where the best of Husbandry is now in Practice. And here I take the Liberty to observe, I have heard, at my Book-seller's Shop, that some have left their Reflections behind

behind them there, saying, It is their Opinion, I compose these Copies, for adapting their Contents to the Subject I write of. But if these Opiniators would but rightly consider the Style the several Letters are wrote in, they might perceive they are not done by my Pen. But to put this out of all Question, I am ready to satisfy any Person of this Truth, who will come to my House, and see the Originals.

The Copy of a Letter sent to the Author, for a proper Plough to plow Bog lands.

S I R,

*June 19. 1744.*

THE public Spirit that seems to run through all your Books of Husbandry which I have read, and much esteem, gives me Encouragement to write to you, for your Advice and Directions how to get and manage one of your Ploughs, such an one as may be proper for the plowing up some *Irish* Bog lately drained, and made dry and firm, sufficient for Beasts to travel on. I believe it is needless to mention to you, who know the Nature of all Kinds of Earth, that this Bog is, in all Appearance (after the Surface, which produces Heath, mixed with a sour ill-tasted Herbage), like the black Earth which is burnt at *Newbury*, but far inferior in all its Qualities to it: Therefore shall desire you to let me know what the proper Plough is for such sort of Soil; the Price of it, with the Charge of getting it on Ship-board, in order to be sent to *Dublin*; and the Place where in *London*, as well as Time when, you would be paid for it. I shall beg the Favour of your Answer soon, which will oblige, Sir,

*Your very humble Servant.*

Please to direct for me

at——near——

*Wilts.*

The



The Copy of a second Letter from the same Gentleman, concerning a Plough to plow Bog-lands, &c.

S I R,

*June 30. 1744.*

I Received your obliging Letter by the last Post, and only write to you now to acknowledge that Favour; for as you mention some particular Sorts of Wheat and Barley, I thought it proper to acquaint my Friend of it, that if he should be minded to have any, they and the Plough, &c. might be sent together. It will be near thirty Days before I can hear from my Friend, should the Packets go and come regularly: As soon as I hear, I shall acquaint you of it; and I shall have, in the mean time, a particular Pleasure in publishing your Schemes of Improvement, so rationally laid down by you.

I am, Sir, &c.

To Mr. *Wm. Ellis*, at *Little Gaddeſden*, near *Hemſlead* in *Hertfordſhire*.  
*Franked by, &c.*

The Author's Answer to this last Letter,

S I R,

*Little Gaddeſden, July 5. 1744.*

YOURS of the 30th of *June* is with me; and finding, by your Letter, that you are to wait your Friend's Orders before the Plough is to be made, I ſend this to acquaint you of a further Improvement. I find, by one of my Journal-Books that I made uſe of in my late Travels, an Account of a very excellent Sort of Plough, that, worked in Maſh-lands, and according to the Make of it which I ſee, I am fully convinced it will answer in Bog-grounds, rather better than that

I lately wrote to you of, because it is a stronger Plough, and will go deeper than that; not but that the first-mentioned is very proper for a Bog that is thoroughly drained and dried. This Plough will cost fifty Shillings, which is more than double the Price of the former: Therefore, if your Friend is a nice Person, and will not grudge, as it were, a Half-penyworth of Tar to save a Sheep, he will have both these Ploughs sent him; for, I assure you, they are both the best Sort in *England*, and, perhaps, in the whole World, for this Use. The Benefit of what I here advise may be of vast Importance, because, upon such two right Instruments may depend infinite Profit: For I am sure, for want of such, and many more that I could name, there are many Thousands of Acres misemployed, by producing barren Crops of Grain, Grass, &c. I know, likewise, of a very valuable Sort of Plough, made exquisitely well to cut Drains through wet Vale-lands in a little time, with a few Horses.—I have lately received a Letter from *Virginia*, to send over our *Hertfordshire* Double-plough, as I have done before a Drill-plough and Horse-break to the same Gentleman, with several sorts of Seeds; and, indeed, if Thousands were more sensible of their own Interest, they would grudge Plough-money the least of any, for the sake of the many Advantages attending the Uses of these superlative Instruments; and the same for the three Sorts of the finest Wheats, which I mentioned to you in my last, which I know would be perfect Novelties, if seen in *Ireland*; for, indeed, they are so at this time in most Parts of *England*, as well as the Barley I told you would be the properest Sort of all others to sow in boggy Ground.

## C H A P. VI.

*Of discovering Springs of Water.*

**H**OW Springs of Water are discovered, in the *cheapest Manner, by the Iron Borer.*—This very valuable Tool was but a few Years since invented, to save the Charge of Mens Labour and Time, that were formerly employed, at an extravagant Rate, by digging deeply into the Earth for finding out Springs of Water, in order to become Wells. And as this Work was generally carried on by guess, in a very uncertain Manner, it brought People many times under very great Expences to no Purpose, when the Diggers missed of Water. Now this excellent Instrument answers the Design, with much more Certainty, Ease, and Cheapness: For, when it does not in a little time discover Water in one Place, it is tried in another; and not only for searching out Springs of Water, but is also made use of, in the same Manner, for finding Coal, Iron, Copper, Lead, Marl, Stone, and other Minerals, in order to make Pits, Quarries, &c. in the Place where the Borer gives the greatest Encouragement. For this Purpose, they begin with making a wide Hole, sufficient for two or three Men to stand and work in, about two Feet deep: Here they enter the Ground with a Borer, or great Augre, or what may be called a Wimble of Iron, whose Bit-part is twelve Inches long and six wide. The other Joints of Iron, as well as the first, are near two Inches square in Thickness, and about ten Feet long, as that likewise is. To begin the Work, they make a large Hole in the Ground, about two Feet deep, for two or three Men to stand in ready to work, by turning the Borer with a large wooden Handle for piercing into the Earth; and, as the Bit fills, they draw it up

up to empty the Mould, and then directly enter it again. When the Borer is got up to almost its Head, they fasten a jointed Iron to it by wooden Wedges, and proceed to turn the Borer again, and empty it as the Bit fills, and so on; they add more jointed Irons, as the Depth of the Ground requires, till they get down forty or more Feet into it. Thus two or three Men will bore down twenty Feet in one Day; and from time to time have the Satisfaction of seeing the different Strata of Earth that the Borer meets with, till it arrives either at a Rock, or Spring of Water: An Operation somewhat like that performed by Pump-makers, with this Difference, that the last carry on their Work by horizontal Boring, and the first by downright Boring in a very free and easy Way, where the Tool does not meet with Stones, or other hard Substances. In some Parts of *Bedfordshire* their Rule is, if the Borer, after boring through their Clay, meets with a Rock of Stone, they do not fear coming at Water; and then accordingly dig down, for getting to and breaking the Rock to come at the Spring. When Water is thus found, they proceed to stain Part of the Well with Brick and Stone, and finish it for their great Conveniencies. Others bore in high Ground for finding a Spring of Water; and if they find it, in some Places the Water will follow the last Boring to the Top of the Earth, and become a constant Supply of Water instead of a Well, and by which the Water may be conveyed, by a Cut in the Ground, or by wooden or leaden Pipes or Gutters, to a lower Situation, and thus become a very great Advantage for a trifle of Expence; and the less, where several join in purchasing this serviceable Instrument.

## C H A P. VII.

*Of making Vaults, Cellars, and Rooms, in springy and dry Grounds.*

**H**OW a Vault, or Cellar, was proposed to be made in a springy Ground, at a great Charge; and how it was supplied at a small Expence, for the Conveniency of a Dairy.—A large Farm, in the Vale of Alesbury, rented at one hundred and sixty-five Pounds a Year, where the Tenant kept, on the grazing Part of it, about twenty Cows, had not a Cellar, nor convenient Room, belonging to it, for carrying on a Dairy in a right Manner: Upon which he solicited his Landlord to be at the Charge of one; but his usual Answer was, that the Springs were so high, that a Cellar could not be well made. The Tenant then acquainting an ingenious Bricklayer with his Landlord's Objection, said, if he would allow him Terrace enough, he would engage to build him a Vault that the Water should not enter, and make it a most convenient Place for his Milk and Butter: But the Charge of this amounting to a higher Sum than the Landlord would allow of, the Proposal was rejected. At last, the Tenant persuaded the Landlord to allow him but forty Shillings, and he would undertake to have a commodious Room made for his Purpose. This being granted, a Bricklayer was employ'd, who sunk an old Room about sixteen Feet square, lying on the North Side of the great Dwelling-house, about three Feet deeper than it was; and, cutting a Drain from the same into a Pond that lay three Poles Distance from it, the Spring-waters never offended this Dairy-room afterwards: Whereas, the Brick-floor of this Room standing, before, almost even with the Surface of the Earth, and the Room inclosed by

by only a Half-brick thick Wall, built in Frames or Studs of Wood, the Sun had such Power here, as to cause the Milk to turn sour, if they kept it the usual Time, as is done in proper Rooms or Cellars; which greatly damaged the Tenant, by bringing him sometimes under considerable Losses: And this the more, as he was obliged to make up and deliver his Butter but once a Week to the *London Higgler*; with whom he agreed at the certain Price of Six-pence *per* Pound, Summer and Winter, for all he made. Thus this Tenant, with a little Money from his Landlord, and a little out of his own Pocket, enjoy'd a Dairy-room, that proved as commodious as some Cellars. But, by-the-by, this Tenant ought not to have been at any Charge on this Account; for such an Expence belongs wholly to the Landlord: And it is very reasonable it should be so; since all Tenants, I believe, find it Task enough to pay their Rents, even with the greatest Conveniencies that are allowed by the best of Landlords.

*How a Room was made to answer the Convenience of a Cellar, for keeping Liquors sound.*—This was done at a Gentleman's Seat in *Bedfordshire*, where the Ground was so springy, that it would not admit of building a Vault or Cellar: Here then they added a new Room to the Outside of another; and, on the North Part of it, built it up with a Brick-wall three Feet thick, and with as little Light as could be well allowed it: This fully answered the Intent, by keeping the Liquors sound almost as well as a Cellar. This Thick-wall Method will likewise do, where Rocks of Stone will not admit the Owner to dig a Cellar; as the Case is with many in *Somerset*, *Devonshire*, and *Cornwall*, where the greatest Part of their Land consists of stony Foundations.

Of

*Of making Tanks and Cellars under Ground for holding Water.*—Necessity invented these; otherwise there could be no Habitation for many Persons that now dwell in Houses, whose Foundations are so deeply dry, that no Spring-water can be had, nor Pond conveniently made. At that great *English* Garrison of *Cape-Coast* Castle in *Africa*, in their sandy Lands, the late Governor *Henry Dodson*, Esquire, told me, they were forced to make a very large Tank Reservoir, or Cistern, in the Earth, for receiving the Rain-waters that are conveyed into it from the Tops of Houses, as often as Showers fall. This they build with Brick and Terrace, so large, that if they have no Rain for half a Year together, this supplies them with Water enough for the Occasions of the whole Place. The same may be done at home, where Houses are to be built on mountainous, or other dry Situations, where Water is to be no otherwise had: Or a Cellar, to hold Water, may be made with Brick, on a well-ram'd Clay-foundation, if the Sides of the same are carried up with Clay ram'd behind the Brick-work, which, if rightly managed, will hold tight; and which is somewhat like the Method that the *London* great Brewer takes to secure the lower Part of his large square or round wooden Tuns, that stand about two Feet deep in the Ground: For which Purpose, Men first spread a thin Bed of Clay on the Earth; and when, with their naked Feet and Water, they have made it pliant, they lay a Bed of it for a Bottom, and the Tun on that; then they ram in, and fill up all the Sides with the same temper'd Clay, till all holds as tight as Copper itself: Or, take it as *Mr. Worlidge* writes: In *Amsterdam* and *Venice* they keep their Rain-water in Cellars, made on Purpose for Cisterns, capacious enough to contain Water for the whole Year; it being renewed as often as the Rain falls. Why, therefore, may we not here in *England*,

land, on our driest Hills, make Places, Pools, or Cisterns, sufficient to contain Water enough for our Cattle, for our domestic Uses, and also for our Garden-occasions, if we were but diligent? Few Years there are, but yield us Plenty of Showers to supply them, though not enough to supply the Defect of them; much more Rain falling here than on the Continent, where those Pools and Cisterns are more used; for which Cause this Island is, by them, term'd *Matula Cæli*: And yet we have many Thousands of Acres of dry Lands uninhabited, untill'd, and almost useless unto us, from this only Cause; notwithstanding we have such easy Means to remedy it.

## C H A P. VIII.

### *Of sinking Wells, &c.*

**T**HE Methods taken, and the Prices given, for sinking Wells in the Western Part of Hertfordshire.——Common Wells are made three Feet three Inches wide, and as far deep as thirty or more Yards; for which sort of Digging the general Price is Six-pence *per* Foot. The Wells in the low Grounds, about *Gaddefden*, are about that Dimension; but in some Places of our Hills we dig two or three hundred Feet deep before we come to Water. After two hundred Feet, the Price is one Shilling *per* Foot for digging and drawing up the Earth: If much lower, four or five Shillings *per* Foot; because in such Depths a Man cannot work above one Hour at a time, before the damp Vapour is ready to suffocate him; and then a fresh Man takes his Place. If a Well is made in chalky Ground, they stain it down only to the chalky Rock, with Pieces of Chalk cut and shaped in such



a manner, that one Piece wedges in another, without any Morter; and this happens from five to twenty Feet deep, as the Rock is nearer or further off the Surface of the Earth. Then they lay on this loose Building of Pieces of Chalk, three or four Courses of Bricks in Morter; and when this is done, they place over all a round Curb of Wood to hold the Top tight, prevent Washings, and give the Carpenter a Basis for erecting Side-posts to fix a wooden Roll in, or to draw up the Water by some other Invention. In sinking old Wells deeper, as is sometimes done in very dry Summers, to clear them of muddy Bottoms, and get a freer Water, the Labourers for this Work have two Shillings and Six-pence a Day, besides Victuals and strong Drink; but in this Undertaking they are seldom above a Day or two employed, unless there be more than ordinary Occasion.——The Atmosphere, or lower Region of the Air, is said not to allow Water to arise in a Pump above thirty-three Feet, or little more. Now that Space, that is between the Water and the Bucket, is Air; and if by lifting up the Handle the Bucket goes down, the Air forces through the Valve of the Bucket, which, shutting, keeps it there. This Air makes a Pressure in the rest, and that presses more Water to the other in the Well; and that having not so much Air to keep it down as it had, easily rises up as high as the evacuated Air gives leave; and so as more Air is taken out, more Water will follow, till all the Air be gone, and the Water itself comes; and then one Water will follow another *ad infinitum*, unless the circumjacent Water ceases, or the Pump is worked faster than the Channels of the Earth will give leave for fresh Water to come in. These Reasons made Mr. *Haughton* think the Air is bounded, and that the Atmosphere has Air enough just to fill it to a certain degree of Closeness;

ness; yet not so close, but that it may be compress'd closer; and so much as it is, so much there will be a Vacuity in some other Place, and so much will be a Springyness tending towards its former Constitution.——At *Otberden* in *Kent*, I am inform'd, there is a Well sixty Fathom deep. On the Hills about *Gaddesden* their chalky Wells are generally about eighty Yards deep. The Water of one of these is drawn up by a large wooden Wheel, and two Horses, kept only for the Purpose of working it, one to relieve the other; for here is such a Consumption of Water as makes it very hard Work for both of them to draw Supply enough. Others keep a large Mastiff-dog to work a Wheel that draws up their Water; or do it with the wooden cogg'd Hand-wheel, or with an Iron-wheel Engine, for drawing up the Water-bucket with the greater Ease.——In some Parts of *Somerset*, *Devonshire*, and *Cornwall*, to come at Spring-water, they are forced to work through Marble, or other stony Rocks; and to make a Well here, are obliged to run the Hazard of a considerable Expence; for here the informing Borer will do no Service, and therefore they proceed by working an Iron Tool, that they cut a Hole with, to hold such a sufficient Quantity of Gunpowder, that when fired, by a Train laid on purpose near a Piece of brown Paper and a Bit of lighted Candle, blows up Part of the Rock into Shatters; and so they proceed deeper and deeper, till they get down low enough to determine whether there will be Water found or not; for here they sometimes sink two or three Wells before they can meet with a Spring; and sometimes, after all, their Labour is lost.——A Gentleman's Well, made at first in a chalky Rock, that was situated on an Eminence, measured two hundred and forty Feet from Top to Bottom, which

supplied a very large Family with Water, for time out of mind, that was daily drawn up by the Help of a very large Wheel, turned about by a Horse kept on purpose for this very Work. This Well was never known (as I could hear of) to be so low in Water as in the Year 1743. when they could not get Water enough to brew with; which induced the Owner to be at the Charge of having it cleansed, and dug deeper; and it was done accordingly in the Month of *January* 1743; for which Work each Man had four Shillings a Day allowed him, to clean and dig deeper. And, indeed, they well deserve it; for a Man could not work above four Hours at a time before he must be relieved by another; and, to support him under his Work, he is obliged to take a hearty Dram of Brandy now-and-then, but to eat nothing; for if he does, it causes him almost to lose his Breath, swell, and be ready to die. Here they are always warm, but very cold when they come out of the Well, and therefore are had immediately to a good Fire, where they shift their wet Cloaths, and put on dry ones, which is their constant Custom; for the Damp or Vapour always wets their Cloaths, and obliges them, when out of the Well, to put on dry ones. By this the Well was dug deeper, till Water flowed in so fast as obliged them to leave off their working any further.——At *Whipsnut-ball* near *Dunstable-downs*, three Miles distant from the abovesaid Well, there is one rather deeper than three hundred Feet, where the Water is drawn up by a Wheel and Dog.

C H A P.

C H A P. IX.

*Of making Ponds.*

**T**HE way we take to make Ponds at and about Gaddeſden.—On our Hills, and in ſome of the adjacent Bottoms, they have no Water but what Ponds afford; and theſe, in ſome dry Summers, are all dry, except two great ones on our Hill, and ſometimes (but rarely) they are ſo too; for in ſome of our red Clays we now-and-then meet with what we call Sand-pipes, or little Veins of Sand, that lie in the Clay, and let all the Water out. The ſame we are as bad off in our chalky Ground, and the gravelly Sort. To make, then, a Pond in any of theſe Soils, we get the ſtrongeſt Clay we can, cleareſt from Stones; and after digging to a proper Depth for the Pan or Bottom, and making ſufficient Slopes on the Side, and at the Head, we begin to ſpread a Layer of Clay on the Bottom, about half a Foot thick, which, with a little Water to moiſten it, we work with flat Beaters, downright Rammers, and crooked Sticks, till we make it fine, and lie cloſe: Then we put on another Layer of Clay, and ſerve it in the ſame manner, both at Bottom, and on the Sides, till all Parts are a Foot, or a Foot and a half, or two Feet thick. Afterwards we pitch the Bottom with Stones, and ſow Graſs-ſeed on ſome Mould, ſcattered on their Outſide; or, which is better, lay ſome Graſs-turf over all. Thus by laying and ramming ſeveral Courſes of Clay one on another, and ſtoning and turſing, we make ſound Work, and keep the Bottom and Sides from being damaged by the Tread of Cattle, and from chapping by the Sun and Wind, whenever the Pond ſinks low, or is empty: Yet I knew a Gentleman loſe all his Labour

bour and Charge in such an Attempt, after the following manner, viz.

*How a Gentleman had a large Pond made, that never held Water.*——— This was done about six Miles Distance from my House, where lived a Gentleman in his new fine-built House, which to make the more convenient, he sunk a large Pond near it, ram'd it well with Clay and Turf, and paved the Bottom well with Stones. And as soon as all was finished, he dug a small Gutter in the Earth from an adjacent Pond on a Common; and then had Men with Jetts to lade out Water, and make it run through this Gutter into the new-made Pond till it was full; but it never held sound, because the Clay was not good, being of too loamy a Nature. But if the Pond had been worked with a true Clay, yet if such Clay was not rightly work'd, it might let the Water through; or if the Clay was good, and the Workmanship so too, yet if the Water was suffered to be so low too soon, as to give the Sun and Air an Opportunity to dry and chap the Clay so far as to let the Water through; I say, the Labour on any of these Accounts would be, in a great measure, lost; for that most of the Work must be done over again, to make such a Pond hold tight: Wherefore, to manage even a well-made Pond right, the Water should, at least, be kept pretty high for some time after making, that the Clay may have time to be thoroughly settled, and closed in all Parts, before the Sun and Air is suffered to come at it; though a Slope or Bank, very probably, will leak a little at first; But this should prove no Discouragement; for, by settling of the Earth, it will continually grow tighter, and in a few Years become intirely firm. However, there is, I am apt to believe, a material Matter in Pond-making overlook'd by some; and that is, where the Bank or Slope has not a right Foun-

Foundation, it may spoil all the Work; and to have such an one, one Foot or more should be dug below the Bottom of the Pond, to begin making the Bank or Slope of Clay; else the Weight of the Water will work itself underneath, and render all ineffectual.

*How a private Person made a Pond for the Use of his House.*——This Pond was made at Gaddeſden in the Year 1740, and ſtands behind a Carpenter's Houſe, at about one Pole Diſtance from it. The Ground it was made in is a red Clay, under a hazel loamy Surface of Earth, fifteen Inches deep: Then the Clay appeared, which though it run down twelve Feet in Depth, before they could come at the chalky Rock, yet the Owner would not dig down above ſeven Feet, nor then rely ſo much on its Cloſeneſs as to venture to truſt to its keeping Water: Therefore the Clay, that came out of the Pond, he had well picked from the Stones, and worked well, by Ramming and Beating, till he laid a ſound Bottom of ſuch work'd Clay fourteen Inches thick, and the Sides or Slopes of the ſame Thickneſs. When he pitch'd the Bottom with Bricks, laid flat-wiſe, and in the ſame Poſture all up and round the Sides, he laid Bricks, to the Number of about nine hundred; for by laying them on their Edges, round the Pond, a few Bricks went a great way. When raiſed thus up to the Top, with Lime and Sand mix'd, that was laid in all the Joints, a Curb, or Piece of thick Wood, were laid round; and a Pump, made to ſtand in the hither Part of the Pond, next the Houſe, whoſe Dimenſion was about five Feet and a half at Bottom, and ten at Top wide, and ſed by Spouts, that brought off the Water into it from the Houſe-tiling; and by a wooden Handle, work'd in the Houſe, the Water was brought into the Houſe for their neceſſary Uſes.

*How*

*How a Pond was made to swim and cure Shoulder-slip'd Horses.*——A Person in *Hertfordshire*, that profess'd Surgery, and curing distemper'd Horses, had a Pond made on purpose to swim Shoulder-slip'd Horses, as believing this to be the best way, of all others, to effect their Cure, according (I think) to a Direction in an old Book wrote by *Markham*; and it may, perhaps, do some Service to a fresh Shoulder-slip. But it is certainly a very uncertain way of Cure, because they trust to the swimming Motion of the Leg and Shoulder to stir and dissolve, or disperse, the Jelly or clotted Blood, that the Strain or Slip is the Cause of breeding and lodging. But I am of Opinion, that Bleeding in the Plate-vein, anointing with Oils, and a Rowel, with a Patten-shoe, is a much more sure Way for a fresh Slip in a Saddle-horse; for a Cart-horse is hardly ever known to come under this Accident. Now, in case a Shoulder should be slip'd of a Saddle-horse, or if the Shoulder of a Cart-horse should happen to be wrench'd, and remain so a long time without a Cure, as many have been, then neither of these Ways will do; as I shall make appear by the two following Cases, viz.

*How a large Pond was made at Gaddefden-hill by Accident.*——This Pond lies on the Middle of *Gaddefden green* or *Common*, finely exposed to a most thin sweet Air, that, by some Physicians, has been accounted the most healthful Air in this Part of *Hertfordshire*; being highly situated, clear of the Cover of all Trees and Bushes, and of the Filthiness and Putrefaction of their Leaves. This Pond, about one hundred and twenty Years ago, was a Chalk-dell or Pit, wherein many Swine were usually kept on Wash and Grains: Here, also, a Dunghil was every Year made: And they were these Accidents that, in time, proved very beneficial to the Village

Village of *Gaddefden*; for, by this very means, the chalky Bottom and Sides of this Dell or Pit became plaister'd over, and, as it were; cemented; for, of all Dungs to this Purpose, none is so serviceable as that from Swine; which being trod in by the Feet of these Animals from time to time, at last this chalky Hole held Water like a Pewter-dish; and, at this Day, retains more than any other Pond in this Part of the Country; so that *Gaddefden*, and some of the adjacent Places, in very long dry Seasons, are supplied with Water from this Pond; which is called by the Name of *Blue-pot*; but for what Reason I know not. This Pond, in its greatest Depth, is about eight Feet, and forty broad, well stored with Fish, that it breeds and nourishes with great Expedition, and serves for watering the Cattle of the adjacent Farmers; as also for Brewing, for Washing, and for culinary Uses, as being the freshest and best Water we have. I never knew this Pond dry, but once, in near thirty Years time, and that was near twenty Years ago; when I, as well as others, were forced to send our Teams to a River for Water that lies three Miles off my House: Which Account may, perhaps, be serviceable to some Persons, that have the like Opportunity to make of a chalky or gravelly Dell-hole or Pit, a considerable Pond, in the cheapest manner possible: For, in this Case, the Swine may be said to be the chief Makers of such a Pond: And, from what I have seen in my Travels, I am sure there might have been many Ponds made this way, where there is none at present; for in innumerable Places may be seen Water to stand by the mere Washings of Dirt into their Ditches, and other hollow Parts of Sands, Gravels, Chalks, and Loams, where the natural Soil would not alone hold Water: But, by the Mud and Sludge that washes into their Basen-parts, it so fills up,



up, as I said, the porous Surface; as to cause a lasting Retention of Water: And from hence many fine Ponds have accidentally had their first Rise; and tempted their Owners to enlarge their Bigness into noble Fish, and other Reservoirs of Waters; with this further good Property, which generally attends all such Ponds, that the Mud that they receive from the Fall of Waters may be made to do great Service, either on plowed or Meadow-ground; and the more, if such Mud is rightly mixed with small Chalk, Lime, or Ashes; and turned once or twice, till the Whole becomes a fine Heap of rich Manure: For it is such a Composition that comes nearest to the true Marl, which makes the *Kentish* and *Essex* better Sort of Farmers use their utmost Endeavours every Year to obtain such a Compost for their Wheat-land in particular; for this Dressing is of so sweet a Nature, as to prevent Smuttiness. I knew of a large Pond, situated on a high Common, and near a Farm-yard, that lies so favourable for the Tenant's Purpose, that I verily believe the Mud of it is worth ten Shillings a Year to him, by reason it is furnished, in three or four Years time, with such a Quantity of it, as enables him to dress a Three-acre Meadow to a very great Advantage; for into this Pond runs the Drain of two Farm-yards, besides the falling Waters of a common Road, through which abundance of Sheep pass every Day from the Folds to this Common all the Summer-season; which impregnates this Mud with such a fertile Quality, as produces most rich Crops of natural Grass, without any Addition of Stable-dung, Chalk, Lime, or Ashes; for this Mud, after it is got out of the Pond, and dried, is carried, and laid on the Grass-land about *Allballowside*, where it is spread for the Winter-rains to wash it in. But, although I here write of laying on this Mud in its raw and undigested *four* Condition;

tion, it ought not to serve for a general Precedent ; because the excessive Richness of this Mud supplies that which a poorer Mud requires to make it answer a fertile Purpose ; even the said Mixture of Stable-dung and Chalk, or Lime or Ashes, to be incorporated with it, in order to add a Strength, a Fineness, and a Sweetness, to the Body of such poor Mud : And, when it is thus cured, it may become one of the best of Manures for either Meadow or Arable-lands. But, besides the extraordinary Benefit that attends this well-situated Pond for the Increase of the richest Mud, at the same time, and by this very means, this Pond is, perhaps, one of the quickest of feeding Ponds ; for, in three or four Years time after Tench and other Fish are put in here, about the Bigness of a Sprat, they will grow to six Inches in Length, by the End of that Time.

*How Trouts may be made to acquire the greatest Degree of Redness, and of the Colour of Eels; and other Fish.*—— Fish, undoubtedly, like Beasts, have their Bodies better or worse, as the Soil, Water, and Air is good or bad they live in. These are what make Eels in muddy Ponds and Rivers, shew yellow Bellies, and eat with a nasty, muddy, loathsome Taste, when Eels taken out of gravelly or chalky Ponds and Rivers, shew white silver Bellies, and eat luscious : Yet, so contrary is the Nature of some Fish to others, that the Tench, in particular, seems to eat fatter and more luscious out of a Farm-yard Pond than out of a clear River ; as I have experienced. But the Body of a Trout is well known to acquire the reddest and sweetest of Flesh, when he gets his Living near a chalky Spring-head, where he feeds with great Delight, and runs into a very expeditious Growth.

## C H A P. X.

*Of Fishing in the Sea.*

**O***F Sea-fishing by Engines.*—Sea-fishing is the most delightful, profitable, and healthiest Fishing of all others, because here is more Variety, and greater Quantities, of both small and large Fish, than what Rivers afford. Variety, I say; for that near most of the Sea-shores in *England*, the excellent next best Fish to a Salmon, called a Mullet, is taken in great Numbers by the Drawing Seine-net, as well as the Standing-net, fixed by Polls on the Sea-shore; a Fish, that at *Canterbury* sells for Six-pence *per* Pound; but at *Weymouth* in *Dorsetshire* the Silver Mullet, as big as a Mackrel, sells for Two pence. This is that fat delicious Fish, that, more than all others, swims next the Shore all the Summer long in Shoals: And, I hope, with the Turbut, the Thornback, the Skate, the Fresh Cod, the Haddock, the Bass, the Sole, the Whiting, the Whiting-pollock, the Scarlet Mullet or Sea Woodcock, the Jan Dorée, the Bream, the Plaice, and others, will be more plenty than heretofore, by means of the new-invented Engines: The Account of which take as follows, as it was printed in the Evening Post in *January* 1743-4.

*An Account of the new-invented Fishing-engine.*—Whereas his Majesty's Royal Letters Patents have passed the Great Seal of *Great Britain* to *James Hamilton*, Gentleman, for the sole making, using, and exercising a new Engine or Engines for taking of Fish, by the Help of which (being fixed upon the Land, and a small Anchor carried out, only once, and) dropt in the Sea at a thousand Yards, or any less Distance, from the Land or Shore, almost every Sort of Fish that happens to swim between the Anchor and the Shore, may be taken,

either by Fishing-nets of different Sorts, or with Hooks and Lines, for several Months together, without carrying either or any of them out in Boats into the Sea ; this Method of Fishing being no ways toilsome or laborious, and requiring the Attendance of two People only upon the Shore ; and may be fished with in the most stormy Weather, and even as well in the Night as in the Day, and at times when Fishermen cannot venture out with Safety in their Boats : This Invention, having been fully proved on several Parts of the Sea-coast, with Success, will certainly prove very beneficial to those Gentlemen whose Land or Estates lie next the Sea, or upon Rivers, or large standing Waters ; and will likewise give constant Employment to the Poor in general in such Parts ; and especially those poor People whose Habitations are close upon the Sea-side, may have the single Engines for Hook-fishing fixed within their Houses, and may sit by their Fire-side, and work them, the same as without Doors, a Man or Boy attending on the Shore. Whoever has a mind to buy one or more of the Engines, shall have full Proof given them before they pay their Money, the Price being ten Guineas for the double Engine complete, and four for the single ; or a Guinea down, and a Guinea a Year for a Licence and Figure, which is to be fixed on each Engine, in order to prevent Counterfeits. But if any Gentleman has a mind to contract with the Patentee and Proprietors for any Number of Engines extraordinary for the Hook-fishing alone, they shall have the Liberty to make them upon their own Premises ; and a proper Person shall be sent down to such, at their Expence, with an Engine first to be set up, in order that they may be fully assured of its Success, before any are made.

*Note,* Any poor reduced Family, that has not been inured to hard Labour, if they'll retire and settle upon any Part of the Sea-coast they think proper, may be assured of getting a good Livelihood, by a single Engine alone, without any Fatigue or Labour, only their Attendance.

Letters, Post paid, from any Part of *England* or *Wales*, directed for the Patentee, at the *Admiralty* Coffee-house near *Whitehall*, *London*, will be punctually answered; where the Engines will be disposed of, and at no Place else; as also a Model of the whole Invention may be seen, and Fish taken alive in Nets. And at the same Place may be had Prints of the Engine, with a full Explanation or Description of the Whole.

The single Engines will answer effectually on board of Ships lying at Anchor.

## C H A P. XI.

### *Observations on several Sorts of Insects.*

*Observations made on Toads, Frogs, Snails, Bugs, Lice, Worms or Maggots, Spiders or Flies, Efts and Leeches, &c. by the ingenious Mr. Glandville, of Edgware in the County of Middlesex, who communicated them to me in the following Particulars.*

**F**IRST, *Of the Water and Land-toad.*—From their Coupling to their Spawning, I have observed their Spawn on the Bottom of Waters in a Pond, when the Water was drawn out; and it appeared in a Chain, like what they used to call Knit-knots, or as black Silk tied in Knots, about the Bigness of a Blanket-pin's Head, and half the Diameter, one from the other, with a transparent Body, glutinized together. The Length of this Chain

Chain of Eggs or Spawn I have seen from one Toad, like a Coil of Line, eighteen or twenty Yards. I have made it my Business to examine the Places where I saw them, and at last they grew larger, and burst the Chain, and the black Specks turned to Tadpoles, very small; and I always observed they came to the Shore where the Water was shallowest, or to the weedy Surface of the Water, for the Benefit of the Sun's Heat. After this, as their Bodies grew in Magnitude, I observed them to alter the Colour of their Bellies to a dirty Silver Colour, with small Specks of a darker Colour, and bright Eyes of their proper Colour, and their Mouth round like that of a Leech. They had long Tails like an Eel, with globular Bodies. These I daily examined, by taking them into my Hand; and, at last, found, by the Side of their Tail, one of their hind Legs to come out, and then two Legs to grow longer and longer, and then to break at the Breast or fore Part of the Body, perhaps two or three Toes on one Side, and then on the other, till in about three Weeks time, or a Month, they came to Perfection: Then the long Tail, like the Eel's, with a Flew on each Edge, being of no more Use to them, by reason they made use of their amphibious Legs to swim with, the Tail, in a Week or a Fortnight, rotted off, which I daily observed. Then, after Rains, I observed they crawled out of the Pond on the Land, and left the watery Element for an earthy one. And, *N. B.* I have seen a Water-toad to ride a Carp till he has starved it to Death, or poisoned him with his Spawn, which covered the Carp; and his Fingers or Toes have been so fixed in his Sides, betwixt the Fish's Scales, that I could scarcely get the Toad off the Carp's Back, when out of the Water.—I have seen a dry, or Land-toad, under a large Log of Timber,

Timber, in a round Hole, where I could not see any way that it could get into it : And here, I perceived, it was covered in its Spawn, and the Spawn joined together with a slimy Thread or Jelly, not like the Water-toad, but like the Spawn of a Lobster. I have also observed the Tongues of Toads and Frogs with their Points inverted down their Throats. The Land-toad has a Form somewhat like an Hare's, which, in the Evening, it quits, in Quest of Food. A Bittern was shot flying over a Water, with a Toad in its Mouth.

Secondly, *Of the Water and Land-frog.*—I am of Opinion, that the Land and Water Species are alike : Only this I have observed, at the time of their coupling in the Water, to be the same as Toads ; but their Spawn is of another Shape, yet has the same black Specks in it ; is in Globules, as big as small Currans ; and grows in Clusters, joined together like Grapes, but swells larger. The Difference between their Spawn and the Water-toads is, that the Toads lie at the bottom to hatch, and the Frogs Spawn swims at top of the Water to hatch ; and accordingly they hatch it on the top, that afterwards turns to Tadpoles, the same as Toads, with a long Tail, and their Legs come out as aforesaid, in the same manner the Toads do, and their Tail rots off the same. At last, when they come to a Maturity of Growth, they make to Land, and thus prove themselves to be of an amphibious Nature.

Thirdly, *Of Water and Land-snails.*—I have seen two Kinds of these in stagnate Waters, one much smaller than the other ; one with a broad-mouthed Shell, coming to a spiral Point, conical, very swiftly ; and the other being very flat, in a spiral Line, with several Rounds. I have often pulled them out of Ponds, among the Weeds. As to their Spawning, or Laying of Eggs, I know not how  
to

to account for them in particular ; but this I have observed in Land-snails, when I have seen them gender, that they both have Instruments of the Male and Female Kind ; for I have pulled them asunder, and pulled the Instruments out from each other.—They lay Eggs in the Ground, about the Bigness of a large Corking-pin's Head, clear, globular, and transparent, joined together with a small Thread of Slime.

Fourthly, Of *Water-bugs*.—I have made Observations on Bugs of different Kinds in stagnate Waters. There is a small Sort, of the Bigness of about half a Pea, which plays on the Surface of Water in Companies, running round each other in a swift and uniform Manner, with very shining black Backs ; they have two Wings, and six Legs ; the first are of a very hard Substance, and under them are two soft transparent Wings. — Another Bug I have seen in stagnate Waters, much larger than the other, being about three quarters of an Inch in Length, and near half an Inch Diameter, with six Legs ; but two of them are much longer and broader than the rest, like an Oar, notched in their Edges, and have forked Claws, which they swim with in a very swift Motion. These have also two large hard Wings, and two soft Wings under them ; will frequently come to the top of the Water, I suppose, for Air ; but if you offer to take them, they will run very swiftly, in a downright Motion, to the bottom of the Pond, by the Help of their Legs, or Oars as I call them, because they use them as such in a very swift Manner. I have laid one of these on his Back, and found him to be so strong as to jump two Inches high.

Fifthly, Of *Water-lice*.—I have often seen these, in stagnate Waters, some as large as a Grain of Wheat, others as small as a large Pin's Head, very



very transparent, with six Legs, a flat Head, and but one Eye, and that in the Front of their Head, like the Story of *Polypheme*. They are very swift in Motion. I have seen these Sort in a Tub of Rain-water as well as in Ponds, where, as I suppose, the Water in such a Tub has been kept so long as to putrefy, and breed them.

Sixthly, *Of the Water-shrimp*.—I have seen a Sort of Insect, in stagnate Waters, to swim on his Side in a swift Motion, almost in Shape like a Sea-shrimp, very transparent, in Magnitude about the Size of a Grain of Oatmeal.

Seventhly, *Of Water-worms*.—I have often seen Worms, in stagnate Waters, of different Sizes and Kinds, some as large as two Inches long; others not three quarters long, which were of an harder Substance.

Eighthly, *Of Water-maggots, or Grubs*.—I have seen various Kinds of these in stagnate Waters, and particularly where there is Mud, and the Water shallow. Here I have observed a Maggot to gather Sticks, or Straws, or other Soil, and creep with it on the Ground till his Legs grew useless, because in this he inclosed himself, and bred Wings in his Hut or House; and, at last, when he has got Strength enough, he crawls out of his Hut, takes Wing, and flies upon the Surface of the Water in the Summer. First it is called a Caddis; and then a *May-fly*.—I cannot forget another Grub, which I have seen in the Country, in a Necessary-house, in the Summer, at the time the Excrement is all in Motion by Fermentation; and turns to a large Maggot with a long Tail, and several short Legs; and then turns to a *Chrysalis*, and lies till it comes to Perfection, when it is like Bee, but with no Sting, and always takes its Pleasure in Houses-of-Office or Leystalls, where, I believe, he

he lays his Eggs, and from them Maggots breed again.

Ninthly, *Of Water-spiders.*—These I have frequently seen, both in stagnate Waters and Rivers. They run on the Surface of the Water, and are of so light a Nature, that they sink not ; but if you strike at them with a Stick or Stone, they will either dive, or run away. They have six Legs, and four Wings ; the under Wings are soft and transparent, and the others very hard, as are their Bodies. I have seen them catch little Flies, or small Gnats, on the Water.

Tenthly, *Of the Eft, or Water-lizzard.*—There are Efts, a Sort of Water-lizzard, of various Colours and Magnitudes, with a Tail like an Eel, which I have seen to prey on the Water-lice, and small Flies, as Gnats, &c.

Eleventhly, *Of Leeches.*—There are Leeches which breed in stagnate Waters, as the Horse-leech, Leeches for bleeding, &c.

Twelfthly, *Of the Horse-hair Insect.*—I have seen, as some describe it, a Horse-hair, in stagnate Water, to have Life and Motion, which I have taken up, and it twisted round a Stick ; and, on my pinching it, I found it to twist itself all up into a close Snarle ; then I broke it in sunder, by pulling it into two Pieces ; and observed an outside Skin, and its inner Part of a white Colour. The Root of the Hair seemed to be the Head, and the whole Body moved in a serpentine Line, as an Eel doth. I took some of the same Water and Mud, and put it into a Bottle, in order to see what it would produce ; but the Confinement killed it.

Thirteenthly, *Of the Water-scorpion.*—I have seen, in a Tub of Rain-water, an Insect, or living Creature, in Shape not unlike a Scorpion, with two Horns, and several Legs : The lower Part of its Body was all formed of globular Parts ; had a  
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forked Tail, and a Body transparent, like a Shrimp. Before the Water is boiled, he rises very often to the Top of the Surface, and is swift of Sight; for if you offer to touch him, he immediately sinks to the Bottom, by throwing his Body side-ways in a very quick Motion to-and-again, like the Rudder of a Ship or Boat.

## C H A P. XII.

*Of Hay.*

**T**HE good and bad Properties of Hay. ———  
Of how great Consequence it is for a Horse to be fed on good Hay, and of how ill Consequence it is for them to feed on bad Hay, is very clearly made appear by Dr. *Bracken*, at Pag. 110. in his second *Book of Farriery*, where he gives the following Account of the Matter; viz. When a Horse lives on Hay alone, unless the same is exceeding sweet and fine, he fills his Belly with it to that degree, that the Blood-vessels, as well as all the Glands, or Strainers of his Body, are stuffed and obstructed, in some degree at least: On this account he is obliged to drink a great deal of Water to dilute, as we call it, the Hay in his Stomach. This again increases the Pressure mentioned, and the Lungs themselves can scarcely be expanded sufficiently to sustain Life.

I have said, that unless Hay is very sweet and good, a Horse will stuff himself too full of it, if he is kept constantly at it. This may seem a Paradox, because one may imagine a Horse would eat more good than bad Hay: So he will for a while; yet when he is grown pretty fat with green juicy Hay, he will not require a large Quantity; that is, he will not eat so large a Quantity as he

did at first: For consider, a small Quantity of good Hay contains as much Nourishment as a large Quantity of bad. And as the Horse's Body must be sustain'd, or rather as Nature is always striving to bring the Creature to the highest Point of Health and Vigour, she craves a constant Supply of nourishing Food; and therefore, if a Horse be kept with bad Hay, he must constantly eat more of it; otherwise he could not be sustained; yet this bad Hay has the Inconveniencies spoken of; besides that, by it the Blood becomes so viscid, poor, and despirited, that the Fibres of the Body are not supplied sufficiently to drive it round in due Time and Order; from whence swell'd Legs, &c. proceed.

From hence it appears, that the more juicy it is, or the nearer it approaches to the Nature of Grass, the more healthful it will be; therefore the Hay that is dried under a Shade is most natural; for the Sun extracts from Vegetables most of the nourishing Juice; I mean, when such Vegetables are cut down, and spread abroad in the Sun for a time. This has been made appear by the learned *Boerhaave*, late Professor of Physic at *Leyden*; and any Apothecary can tell by Experience, that the green Herb yields most Salt.—And again, he says in another Place, that some Horses are of so fortunate a Make and Constitution, that they will look pretty sleek and well, even with Hay alone, provided it be very good and sweet, and given to them by a little at a time, well shaken from Dust, &c. So far *Bracken*.

*The Hendon way of making and curing Hay.*—In my last Book, for the Month of *June*, I have wrote on the *Hertfordshire* way of making Hay, and hope I have therein given some Satisfaction to my Readers. But as I have since met with new Informations, and made new Observations on this

Account, I further add, that by the aforesaid Dr. *Bracken's* writing on Hay is shewn how valuable good Hay is to a Horse, in comparison of the worser Sort; therefore, as the Quality of good Hay ought to be endeavoured for, for the several just Reasons this ingenious Author has assigned, I shall now proceed to give an Account of the excellent *Hendon* way of making Hay; because these Farmers are reckoned the best in *England* for curing their Hay, by making it so as to retain a green Colour for Years together, in order to obtain the greater Price at the *London* Market, where they sell most or all their Hay at times throughout the Year; for several of these Hay-farmers live within six or seven Miles of *London*.

The first Day—They mow, and let the Grass lie in Swarths.

The second Day—They begin to ted it at Eight o'Clock in the Morning: At Ten they turn it against the Wind, that breaks the Jusslocks, which otherwise hang together, and would fall heavy. At Two o'Clock they turn it again contrary to the last way: Then in the Evening they take it into Wind-rows, and set it up in Grass-cocks.

The third Day—As soon as the Dew is off, they break the Hay into square Staddles, and afterwards turn them two or three times the same Day, and at Evening set it up in Bastard-cocks.

The fourth Day—They break it out into Staddles again, and give it a Turn or two that Day. Then they set it up in great Cocks fit for Carting. —This way makes it of a fine green Colour, without which there are little Hopes of Sale. But in case of Rain, they run it up in great Cocks to save the Colour, to obtain which is their chiefest Art.

Latter Meath, or second Mowing—They make the very same way. This After-meath, or, as some call

call it, Rowen, they sell to the Cow-keepers about London; for as hard Hay is best for Horses, the second Mowing, or soft Hay, is deemed as well for Cows; and for this Purpose is the better liked of, because it is cheaper than the first Crop.

*Of the Lady-finger Grass, and some other Sorts.*—Here they say the King's-finger Grass (for here it goes by that Name) is the best of Grasses, grows with a yellow Flower, and grows somewhat like a wild Thetch in Kids.——Red Honeyfuckle, they say, is a very good Grass; and that the white Honeyfuckle is so too, but is weaker than the red, because it is only a second Shoot from the same Root. Black Bennet, and Couch-grass, they say, grows much among their Corn, because they sow their plow'd Land every Year, and seldom or never sow Clover: They say their Land is too heavy for it. Here they have the blue, the red, and the yellow Tare-tyne, or wild sort of Thetch, which is accounted an excellent sort of Grass; and where it grows thick, hangs so together, that a Person may shake it a Pole or two together. They have likewise the fine three-leaved wild Trefoil-grass, the wild Ray-grass Bennet, and the Wheat-bennet; which last, when ripe, shews their Grass is fit to mow, and this is a Rule they often go by. The finest Grass or Hay is the worst when wetted.

## C H A P. XIII.

### *Of saving Crops of Turnep-seed.*

**S**everal new ways to defend a Crop of Turnep-seed against the devouring Field-sowls.——In my first Book for the Month of June, at Pag. 41. I have there given an Account of saving Turnep-seed

seed by the Help of a Gun, &c. but as this Instrument is an expensive one, and only fit to be used by a Man, it does not suit every one's Conveniency to protect a Crop of Turnep-seed in this manner. Yet if it is not protected from the Rapine of Birds by one means or other, it is in vain for any one to pretend to save the Seed ; and as *June* is the Month for saving and cutting down Turnep-seed, I shall here give a further Account how a Crop of this Seed may be saved very surely, and very cheaply, at this Season, when the Birds are most eager on this sort of Prey ; for they are not invited to feed on this Crop till the Seed is in Pod ; and then they never fail to attack and devour it, if they can.

*First way to defend Turnep-seed from Field-fowls.—*

If there be any Trees, Hedges, or Shrubs, or any thing near the Turnep-crop for Birds to settle on, Lime-twigs may very successfully be made use of, by laying them on any of these. Then if a Man or Boy goes near the Crop, and frights the Birds away from it, they will be apt to settle on the Part where the Twigs are, and be caught ; or if they are not caught, and brought to hand, they can never fly afterwards, but must die in one obscure Place or other.

*Second way of defending a Turnep-crop from Birds, as perform'd by a Farmer at Chesham in the County of Bucks.—* A Man at *Chesham* took this Method to keep Birds from his Turnep-seed, when in Pod, and they had begun to turn yellow. He fastened near one hundred small Bells on a Packthread, or a very small Cord ; and fixed it along and about the Sides of the Turnep-crop, in such a manner, that a Boy being placed near it in Ambuscade with a little Gun in his Hands, he was ready to pull a Line, that moved other Lines that had the Bells on them ; and by this means made all the Bells ring at once, which, frightening the Birds, caused the Flock to

to settle at once on the nearest Tree, Hedge, Shrub, or any other Contrivance laid near the Place for this Purpose, and then shot off. By this the Farmer preserved his Turnep-seed so well, that he had a Penny a Pound more for his than others could sell for, who had the best Seed pluck'd out by Field-fowls, and the worst exposed to Sale.—

This Fact is a very material one, and of great Consequence to those who make it their Business to save Turnep-seed; for, in some scarce Seasons, the choicest Sort of Turnep-seed sells for a Shilling a Pound; and then, if a Person can save his Crop intire from the Damage of Birds, he may get, perhaps, more by this Crop than any other he is Owner of; and altho' I have mentioned near a hundred Bells used for this Purpose, yet a Quarter of that Number may serve, where the Crop stands on a lesser Compass of Ground.

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## C H A P. XIV.

### *Of sowing Turnep-seed.*

**H**OW a Farmer sufficiently dressed a Piece of Ground for Turnep-seed, and yet had but a poor Crop.—A Farmer, to get a good Crop of Turneps, gave his Field only two Plowings instead of three, which occasioned him to have but a rough Tilth, when he was to sow his Turnep-seed; however, the Season presenting itself, he sow'd his Seed, and in Return had a poor Crop of Turneps. The Reason was, that although he double-folded or dress'd his Land under a rough Tilth, it was not in so good a Condition as it would have been, had he given it three Plowings to get it fine, and a single Folding; for a fine Tilth, and no Dressing;



ing, is better than a bad Tilth, and a good Dressing.

*Dew-plants of Turneps.*—What we call Dew-plants is that Turnep-seed that lies on the Surface, exposed to the Dews, which, in such a Situation, moisten the Seed to that degree as to force it into the Growth of Turneps in four Days time, in the driest Seasons. But this is not an absolute Sign of the whole Crop taking; for though the Dew-plants appear, which are but few, that Seed that lies deeper may not appear in two, three, or four Weeks or more afterwards; but if Rain falls quickly after the Dew-plants appear, then the whole Crop is all up at once.

*New-broken-up Ground not proper to sow with Turnep-seed.*—New-broken-up Ground is unfit for sowing Turnep-seed on, because such Ground will be rough and four; and, therefore, it ought to have three or four Crops of Grain sow'd on it first, that the Land, by repeated Plowings, Harrowings, and Sowings, may be reduced into a fine clean Tilth. But if such Ground could be got fine at one Plowing, it would be improper to sow Turnep-seed on it; for that the Richness and Rankness of such new Ground would cause the Turneps to grow rank, and unfit for Man or Beast; for a Sheep, as well as a Man, loves a sweet Turnep, and will thrive accordingly on the same.

*Why Harrows are sometimes employ'd before the Hand-hoe, for improving a Turnep-crop.*—This has been found to be a very successful way, when Turneps appear too thick; and the more so, when the Ground has got hard by the Fall of heavy Rains quickly after the Turnep-seed is sown: Then after the Turneps are got big enough for the Hand-hoe, the Harrows, by being drawn over them once or twice in a Place, will not only thin their Numbers,

bers, but at the same time loosen the hard Surface, and give infant Plants an Opportunity to strike their Roots with Ease and Freedom into the Earth, for their greater Nourishment, preparatory for the Hand-hoe to follow presently after; for where the Surface is hard, the Turneps will languish, instead of thriving; nor can the Hand-hoe penetrate deep enough, in this Case, to give the Turneps such a sufficient Quantity of Mould as is requisite for their Assistance. And a Gravel, which is accounted one of the best of Soils for producing the sweetest Turneps, is the most liable of all others to acquire a hard Surface by the Fall of hasty and heavy Rains. This Piece of Husbandry an old Farmer near me gave the greatest Example of, that I ever knew; and he often succeeded in the Enjoyment of very profitable Crops by this means.

*Of the erroneous Way that some take to get a Crop of Turneps, without Hoeing.*—In Nottinghamshire, and in some other Parts of the North, they sow their Turnep-seed in the broad-cast Way, with an Intention not to hand-hoe their Turneps: And, that the Seed may thus produce a large Crop, they plow well, and muck well, and sow only half the Quantity of Seed; we usually do in the Southern Parts of *England*, on purpose that the Turneps should grow thick enough for Hoeing. This, I must confess, happens sometimes to prove a good Crop for feeding their Sheep, Cows, or Oxen, in the Field: But this is Money falsely saved; for if an Acre of Ground had no Turnep seed sowed on it, and was hoed all over at five Shillings an Acre, it would well pay the Charge; because good Hand-hoeing is near as good as plowing; and this the next Crop of Grain would plainly prove, by shewing to a tittle, how far the Hoe was employed. The Hoe, therefore, is well known, not only to keep down many Weeds, and kill others; but it

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likewise keeps the Ground fine and sweet, and causes the Turneps generally to grow as big again as otherwise they would be, unless a very favourable wet Season happen to such unhoed Turneps, and they luckily stand thin enough by Accident; for I can call it no other, because when such a regular full Crop falls once to the Owner's Share, by omitting hoeing it, I dare say he misses twice or more of it. Wherefore, I should think no wise Farmer ought to trust to such a Chance, for two Reasons: One is, If his first Sowing misses, fine Weather for plowing and sowing again may not happen a second time in that Season: The other is, If he should be disappointed, and not get a Crop, he may suffer much, by being deprived of a Winter Subsistence for his Cattle; and so of a Dressing for a succeeding Crop of Barley. If a *Hertfordshire* Farmer was known to neglect hoeing a Crop of Turneps, on purpose to save Money this way, he would be readily censur'd for one of the worst of Husbandmen. However, so it is, that in some of the Northern Counties, they wilfully neglect it; and as Custom rivets them in it more and more, they are so far from being brought over to the Practice of Hand-hoeing Turneps, that some strenuously argue against it, and say it is a needless Expence. But were these Northern Farmers to see how the *Middlesex* Men hoe their Horse-beans, even where the Seed was sown in the promiscuous way, I should think it would be enough to convince them of the Benefit of Hand-hoeing, and alter their old wrong Notion, that Hand-hoeing Turneps is an unnecessary Expence. But I will put the Matter upon this fair Issue: Let a Crop of Turneps be hoed, and another unhoed; the Crop of Barley that follows the first, if fed off, will be twice as good as that which follows the last. And, that we may with the more Assurance hope for a plentiful Crop of

Turneps

Turneps and Barley, in *Hertfordshire* we commonly sow three Pounds of Turnep-seed on each Acre, with an Intent there shall be enough for the Fly, the Owner, and for employing the Hand-hoe to thin the Crop. But since I am here engaged in writing on the Northern Way of sowing Turneps not to be hoed, I shall proceed to shew the beneficial Use of the Sheim Instrument, that would be very serviceable to all those who would not be at the Charge of Hand-hoeing Turneps.

*How the Sheim Instrument supplies the Place of Hand-hoeing Turneps.*——Now those Northern Farmers, who think it an extravagant Charge to give five Shillings for Hand-hoeing an Acre of young Turneps, should have the triangular Sheim Instrument by them, ready to be made use of for supplying the Hand-hoe; which it will do, though the Turneps come up ever so thick. The Time for using the Sheim is, when the Turneps are large enough for Hand-hoeing; then we fasten three or four Horses in Length to it, that, I will suppose, has only eight little iron Hoes, or Feet, left fixed in a Row, on the outside wide Beam, or third Part of the Sheim: For, in this Case, the three Hoes, that, at other times for other Uses, stand fixed in each of the other two Side-beams, and the single Hoe that stands in the Middle, to make up the whole Number fifteen, are taken out. When the Sheim is in this Order, the Ploughman holds it by its two fixed wooden Handles, while the Horses draw it in a strait Line; and thus forces the Hoes to tear up and destroy all the young Turnep-plants that stand in their way; leaving only those to grow, that stood in the Interspaces between each Hoe: Thus the Breadth of three or four Feet of Ground may be hoed at a time, by the Horses Draught; and, in one Day's Journey of eight Hours Work, there may be three Acres, or more, of Ground,

thus hoed long-ways. But if, after this first Operation, the Turnep-plants are thought to stand too thick, the Sheim may be drawn again the Cross-way, contrary to the last; which will hoe all the Turnep-crop in square Work, in the nearest Imitation of Hand-hoeing that can be done by Horses drawing. And, indeed, I must needs say, this is an excellent cheap ready Way; because, to have always such an Instrument ready in the Turnep-season, may save a great Farmer Scores of Pounds in one Year's time; I mean a Farmer who may sow fifty or a hundred Acres of Land with Turnep-seed in a Season: For such a great Farmer, it is to be supposed, can't get Hands enough, at pleasure, to hoe so much Ground so soon, as to preserve the young Plants from setting, or what we call burning or stunting, and, consequently, spoiling. Here then is proposed a Remedy that may be had at a cheap Rate; and, when once had, will last many Years with careful Usage, not only for improving Turnep-crops in the cheapest and quickest Manner possible, but likewise for performing other Works in Husbandry. It is this same Instrument, that, when it is furnished with all its fifteen little iron Hoes, and drawn over a Field of light Earth, that has been plow'd before with a common Plough, to get it tolerable fine; I say, when Ground is in this Condition, the Sheim, if drawn long-ways and cross-ways over it, will fine it to an admirable Degree, and make it ready and fit to sow on it Turnep-seed, Wold-seed, Cole-seed, Flax-seed, Wheat, or Barley, &c. and dispatch more of such Work in one Day, than four Horses in a common Plough can do in three. This is Fact; and which any Person may find true, if they will have one sent them for a Trial; which I can do by Ship or Waggon, for a Trifle of Charge, in comparison of the great Service it will do: For I publish this  
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from the Field of Experience, and not from a Chamber of Theory-writing. Therefore, all Gentlemen who occupy arable Land, and sow Turnep-seed, Corn, and artificial Grasses, &c. should, though they plow but little Land, have one of these Instruments; for, if they have but little Land in their Hands, it will help a few Horses to do a great deal of Work in a small Space of Time; and, if they hold a great deal, it will still save much of Man's and Horses Labour: And how valuable these Articles are, every Farmer is sensible of, without Information; for I am persuaded, that if this, and some other Instruments, at this Time unknown to Thousands, were made use of by them, the present low Market for Grain, &c. would not hurt them; because, by these means, they would be able to carry on their Farming-business with a great deal less Expence, and do it in less time than it is usually done in the common Way of performing it; which are the two main Things all Persons concerned in Agriculture eagerly wish to enjoy. But it is to be suspected few will go out of their common Road of Practice, to buy or make use of this cheap, dispatching, serviceable Engine, much less for others of a greater Price.

*The great Improvement that may be made by sowing Turnep-seed in Drills, and Cole-seed in the Intervals.*—In my monthly Book of the *Modern Husbandman*, for June, at Page 27. I have there amply wrote on the Benefits consequent on sowing Turnep-seed in Drills: But as I am become Master of more Knowledge in this valuable Branch of Husbandry, I shall here resume the Subject, in order to give an Account of the great Improvement that may be made by sowing Turnep-seed by the Drill-plough, in Drills four Feet asunder, and sowing Cole-seed, broad-cast, in the Intervals or vacant Spaces between the Drills. Now this sort of Husbandry is confined

confined mostly to loamy Soils ; for dry Gravels, Chalks, and Sands, are not moist nor stiff enough to nourish the Cole-plants in Perfection : But where the Land is proper, Turneps may be drilled in the latter End of this Month, and the Cole-seed at the same time sown broad-cast between the Drills, which a good Sower will easily do ; and when the Turnep and Cole-seed is sown, a light Harrow may be drawn over all, and the Land harrowed once or twice in a Place, which finishes the whole Work till Hoeing-time. Then, if the Weather has been agreeable, the Turneps and the Cole may be hoed at one and the same time ; or the Turneps may be hoed first, and the Cole afterwards, when it is big enough to hoe ; or the Turneps may be hoed, and the Cole always left unhoed. The main end of sowing Turnep-seed and Cole-seed this way, is to give the Owner an Opportunity to draw the Turneps, and feed Sheep, Cows, or Oxen with them off the Ground they grow on ; for Turneps may be sown in that Ground, which by wet Weather will not endure to be fed on by Cattle, lest they stolch the Land, and spoil the Turneps. And as Turneps, for the most part, get into their appling Condition, and be fit to eat, sooner than the Cole, the Cole, after the Turneps are carried off, may be either fed on the Place by Sheep, Cows, or Oxen, or cut, and given them at times in other Parts. This is a very late Improvement, practised only by a very few nice Gentlemen, who are very much in the right of following this Practice, because by these Vegetables they are capacitated to feed Cattle sooner and later in the Field and at Home. But there is another Use that Cole may be put to, which I never yet wrote of, because I never knew but one Gentleman do it, and that was very lately ;

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so that I must defer publishing this serviceable Secret till a proper Month.

*How Turnep and Cole-seed were sown promiscuously together.*—This was done in an inclosed gravelly loamy Field, in this Month 1743. by a Neighbour of mine, where both Sorts of Seeds took the Ground well by being harrowed in, came up, and were hoed at one and the same time. But it happen'd that such Sowing was performed too early ; for dry Weather succeeding for a long time, and the Soil being somewhat of a hot Nature withal, the Cole run up into Seed before the Summer was out, got sticky, and good for little. Therefore both the Turneps and Cole-seed had been better sown a Month later in such a Soil, that the Coldness of the Weather might have retarded their Growth, and kept them all the Winter in Suspence of Growth, that in the Spring time the Cole might have been invigorated with Heat enough to grow again for feeding and cutting.

*The Case of a Farmer, who sowed a whole Field with Turnep-seed at one and the same time ; and how one Part took, and stood well, when the other Part missed.*—This happened to be a Farmer's Case in our Country, who having plowed a five-acre Field several times to get it into a fine Tilth, and after laid all the Dung he had on the same, that dunged four Acres and a Rood of the Field, leaving three Roods undunged ; which to supply, he penned his Sheep on the same ; and when all the Field was thus well dressed, he plowed and sowed it all over with Seed of the green round Turnep, as he esteemed this the best of all others, because these Sort grow up with small upright Leaves, so that there may be many more of these grow on an Acre of Ground, than others that have broad-spreading Leaves, which take up a great deal of Room, and hinder their standing close ;



close ; though this green round Sort may be called a large Turnep, is a very sweet one, goes but a little way into the Ground, and will stand the Frosts extraordinary well. But the green Tankard, and red, large, round Turnep, he rejects, for that the first rots by frosty Weather, by their standing high out of the Ground, and the other by taking too little Hold of it. This round green Turnep-seed he sowed about the Beginning of *June* 1743. and the Consequence was, where the Dung was laid on four Acres and a Rood of this inclosed Field, the Fly bred, or were invited to harbour, on the same Piece of Ground, in such Numbers, that they eat up the young Turnep-crops ; when the three Roods of Ground escaped their Rapine, and was as full of Turnep-plants as it could hold. And it was remarked by many, that where-ever Dung was laid this hot dry Summer to nourish a Turnep-crop, the Fly destroyed them. But where the Ground was dressed for a Turnep-crop by the Fold, the Turneps stood well ; for the Dung and Piss of Sheep is of so strong a Nature, as almost always proves an Antidote to the Fly, and intirely prevents their Mischief.

*The profitable Nature of the white round and the green round Turneps ; and the unprofitable Nature of the great red round and Tankard Turneps.*—Of all these Turneps in the last Article I have given some Account, except the white round Turnep ; and therefore shall proceed to say somewhat of this, and that is, that this white round Turnep is an excellent Sort ; for it is an early and late Turnep, a Summer and a Winter one, according to the time of sowing the Seed. It apples or bottles into a little longish Round, is of a middling Size, and will endure Weather well, being a fit sweet Turnep for either Garden or Field Uses. On the 30th Day of *June* 1744. a *Hempstead* Gardener carried

carried them about the Country in a Cart, and sold them in small Bunches for a Penny each, being but nine Weeks old from the Sowing of the Seed. There is also another white early Turnep, that for many Years past has been sown as the earliest Sort of all others, generally called the *Dutch Turnep*, but by some called the Mouse or Rat-tail Turnep, of a very clear white Colour, and of so flat a Body, that it is very apt to crack, canker, and spoil its Sale: Therefore, at this time, is in Disesteem with many, who have left that Sort off, and sowed this longish round Turnep in Preference to it.

*How a Gentleman's Bailiff sowed a Field with the Seed of the great round red Turnep, and lost the Crop by it.*—This Bailiff, as the choicest Turnep-seed he could get, sowed that of the 'great red round Turnep, and the Seed produced the biggest Sort this Country afforded: But as their Roots run but a little Way into the Ground, most of the Turnep was above it, I may say near all of it; and though, when they came to be eaten, they looked sound, yet they were puffy, and decaying into Rottenness, so that the whole Crop was worth very little. But if they had been sound when they were begun to be eaten by Sheep, they would have been spoiled; for as they were very large, upon the Sheeps biting their Tops, they lost their Hold in the Ground, and when tumbled about, they quickly daubed and, spoiled. But the green and white round Turneps take a middling Hold in the Earth; grow pretty large; and as they grow more couchant than the Tankard Sort, will better resist Frosts and Wets, and are not so liable as the Tankard Turnep to be pecked and damaged by Wood-pigeons, Crows, Daws, &c. but may be scooped by Sheep to the last.

## C H A P. XV.

*Of the Preservation of Wheat.*

**A**S an Introduction to this Chapter, I shall make use of Mr. *Worldidge's* own Words, because he has wrote very usefully on this Account, when he said, That the Preservation of Corn, when it is plenty and good, is of very great Advantage to the Husbandman, and the Kingdom in general; for in scarce and dear Years the Husbandman hath little to sell to advance his Stock, and the Buyers are usually furnish'd with musty and bad Corn from foreign Parts, or from such as were ignorant of the ways to preserve it.

Therefore, in cheap Years, it will be very necessary to make use of some of these ways for the storing up your Plenty of Corn, against a time of Scarcity.

The way of making it up in Ricks, or Rick-stavals, set on Stones, that the Mice may not come at it, is usual and common.

But Corn thresh'd, and clean winnow'd, is apt to be musty; therefore some advise, that you lay up your Corn in the Chaff in large Granaries made for that Purpose, secure from Mice; and when you use or sell it, then to winnow it.

Also it is advis'd to mix Beans with Corn, and that it will preserve it from Heating and Mustiness. It is probable, that if the Beans are well dried on a Kiln, it may succeed; for then they will attract all superfluous Moisture unto them, which is the only Cause of the Injury to the Corn; for in *Egypt*, where it is so dry, Corn will keep in open Granaries many Years, as in *Pharaoh's* time. The Beans are easily separated afterwards from the Corn.

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It is reported, that Pieces of Iron, Flint, Pebbles, &c. mixed with Corn, preserve it from heating, which may be true; for it is usual to set a Stick an-end in Corn, only to give Passage for the Air, to prevent heating. A large Granary, full of square wooden Pipes, full of small Holes, may keep long from heating, tho' not so well as the Chaff, Beans, &c.

Also some have had two Granaries, one over the other, and fill'd the upper, which had a small Hole in the Bottom, that the Corn by degrees, like Sand in an Hour-glass, hath fallen into the lower; and when it was all in the lower, they removed it into the upper, and so kept it in continual Motion; which is a good way to preserve it.

The best Granaries are those built of Brick and Quarters of Timber, wrought in the Inside, where-to you may nail Boards, with which you may line it so close to the Brick, that there may be no Shelter for Vermin. You may make many Stories, one above another: Let them be near the one to the other; for the shallower the Corn lieth, the better, and is the easier turned; which will be very necessary to do sometimes.

The way of preserving Corn in Granaries may be very advantageous against a dear Year; but if you keep it too long there, it may be unprofitable, and is not so practicable here as in the *Low Countries* (He means *Holland*):

*First*, Because *England* itself is, as it were, a Granary for these Countries, when they have scarce any there, but what they buy abroad, from hence, or elsewhere; and therefore must have Granaries to lay up their Corn in, when they buy it.

*Secondly*, In case they should not buy (when it is cheap) more than they presently use, in dear Years they must expend great Part of their Wealth abroad for Corn; when, in *England*, in case it be

sometimes dearer, yet our Wealth goes not farther than to the Farmer, except in times of great Scarcity, which do not happen above once in ten or twelve Years.

*Thirdly*, In time of War they cannot have Corn to certainly imported as in time of Peace; so they are compell'd to provide against a wet Day, as Husbandmen usually term it; when, on the other Side (let the Seas be never so much troubled), we have our Corn at home.

So that the principal Use of a Granary is against a very dear Year; therefore it is most advisable to dispose of your Corn in your Granary every other Year, and lay up a new Store at a low Market; for by the shrinking of the Wheat, and the Age of it, you may otherwise suffer more than the Grain of a dear Year can recompense you.—— So far Mr. *Worlidge*, which leads me to advance what I have to say on this important Subject; and that is,

*How a Gentleman built several convenient Granaries for preserving Wheat, in order to improve his Fortune by trading in the same; and how he sustain'd considerable Losses by wrong Management.*—— This Gentleman was the younger Son of an honourable Family, who, having nothing but the Improvement of his Money to increase his Fortune with, fell in with a Project of doing it by buying Wheat in a cheap time, in order to keep, and sell it out again at an advanced Price. To this Purpose he built several convenient Granaries, or Store-rooms, that held some hundred Quarters of this Grain; and that in so commodious a manner, that he could let the Corn in an upper Room descend by a small Stream into a lower one, which, by returning into its former Loft, might be made to run down again, and so be continued at Pleasure; which proved a sort of Fan to the Grain, and contributed very much

much to clearing the Wheat of its Dust, and preserving it sweet. So far he was absolutely right. But as I have here shewn the better, I shall now shew the worse Part of his Management; and that was this: He, for much the greater Quantity, bought right dry plump Wheat, that would keep sound Years together; and thus went on well for some time, till he embraced a wrong Notion, for Cheapness-sake, of buying Wheat that was not thorough dry, thinking (I suppose) that a little Quantity of such Wheat would not hurt the greater Quantity of dry Wheat. Yet so it happen'd, that the little Quantity of damp Wheat damaged the greater Quantity of dry Wheat; for the Moisture of the former was made to sweat out by the Heat of the large Body of the latter it lay amongst; which Moisture, so extracted, infected the dry Wheat, and so one Parcel another, till most of it suffered, and the Gentleman was forced to sell it at a lower Price than ordinary. And going on in this manner, he in the End lost more than he got, chiefly because he was not Master of Judgment enough to buy a right Sort of Wheat for his Purpose: Which leads me to shew the Value of a Book of Husbandry in this one material Branch of Knowledge; *viz.* how to buy a right sort of Wheat to lay up, in order to improve the trading Penny; for if this is not truly understood, a Person that undertakes this Business may run out a Fortune, instead of acquiring one, and thus ruin himself and Family. Of this Matter I could, were it convenient to mention Particulars, give Instances of gaining and losing on both Sides; of which I shall only touch hereafter in a general way, and at present proceed to give a further Account of a convenient Granary erected in a foreign Country.

*A large Granary described, as it was built at New Brunswick, or New Harlem, for the Preservation and Stowage of Wheat.*—*Houghton* says it should be three hundred Feet long, eighteen wide, and Lime within the Walls; seven Stories high, each seven Feet high, built with burnt Brick and Sand. The Ends must be North and South. In the Sides there must be large Windows, to open well, and shut close: When these be open, and the Corn stirr'd, the Dust will fly as the Wind sits. In fair Weather they must be open, to have the Corn dry; and in other Weather they must be shut, and a Fire must be in Stoves in the Middle, to keep all dry. There must be Troughs or Spouts to throw it from the upper Granaries to the lowest, and into the Barges, and Cranes to turn in when Need be. And the Charge of this, at *New Brunswick*, or *New Harlem*, he reckons at 820*l.* but it will keep 14000 Quarters of Corn, and six Labourers, with one Clerk, will manage it: And their Wages he reckons at 120*l.* which, with 80*l.* the Interest of the first Charge at 10*l.* per Cent. the yearly Charge will be 200*l.* 6*d.* the Quarter, for keeping the 14000 Quarters of Wheat, which is 350*l.* a Year for Granary-rent.——*Mr. Houghton* says further, that it is the Dearness of Corn that encourages the Farmer not only to pay his Rent well, but to live high, and to improve all unimproved Land within his Reach, which will still increase Trade and Revenue; and the Necessity will make the Manufacturers work harder, and that will increase Manufactures. To which I add, that when Wheat is dear, Cattle is dear, &c. because then the Farmer has Money to lay out; but when Wheat is cheap, all else is cheap.

*The several sorts of Persons that are usually concerned in laying up and keeping Wheat against a rising Market.*

*Market.* — These are generally four several Sorts: First, The Gentleman and Yeoman. Secondly, The Farmer. Thirdly, The Mealman. And fourthly, The Traunter. Of these several Sorts I intend to give some Account, as follows. And, first, Of the Gentleman or Yeoman.

*Of the Gentleman or Yeoman's laying up Wheat, and keeping it against a rising Market.* — The Gentleman and Yeoman I would here be understood to treat of under one Denomination, because these, for the general part, are the richest Persons in the Nation, and therefore the most capable of all others to bear Stock (as we call it in *Hertsfordshire*); that is, to lay out and expend Money, from time to time, for Years together, without getting any by the Sale of his Wheat; for this is a sort of Gain that is coveted, and endeavoured after, from the Duke to the Peasant, as I shall hereafter make appear.

*Tbo' Jews, Turks, Christians, diff'rent Tenets hold,  
Yet all agree in idolizing Gold.*

And this is done in hopes that a Market will hereafter rise to a greater Price of Profit than at present it affords, and thereby double or treble his Gain; for this Purpose it is, that he lays up this his golden Grain in Stacks, or in Cocks abroad under the Cover of Thatch, or that of Boards, made in the manner of a *Dutch Barn*, and on Pedestals of Brick or Stone, to prevent Mice and Rats entering and damaging them, and for preserving his Corn sweet and sound, by the Benefit of the circumambient open Air, that blows around them; or has his Wheat thrash'd, and then stores it up in its Chaff in Granaries, or keeps it in Sacks; which several ways of Preservation I shall speak of in their Places.

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*How a Yeoman sustain'd great Damage by laying up great Quantities of Wheat against a rising Market, and vowing he would sell none of it till the Market rose to four Shillings a Bushel.*—It is well known at Gaddeſden, and Parts adjacent, that a Yeoman of a conſiderable landed Eſtate, who kept it in his own Hands, and occupied it as well as moſt Men (for he was accounted a good Huſbandman), had ſuch an Itch to get Money faſter than his Neighbours, that he hoarded his Corn for ſeveral Years together, becauſe he vowed he would not ſell it till it was four Shillings a Buſhel. And, ſure enough, he kept his Word unbroken till he died, which, if I am not miſtaken, happened near the ſeventh Year after he had begun magazing his Wheat in Ricks, Stacks, or Cocks. Now this raſh Vow of his was attended with a ſad Conſequence ; for when his Executors came to take the Wheat into the Barn, for thręſhing it out to ſell it, there was a prodigious Number of Mice found in his Ricks, that had devour'd his Corn in very great Quantities, and damaged a great deal beſides. And what added to the Miſfortune was, he borrow'd great Sums of Money, in order to ſuſtain the many Expences occaſion'd by his thus laying up a very large dead Stock of Wheat for ſeveral Years.

*How a wicked Yeoman came off a great Loſer by keeping Wheat too long.*—About eight Miles from me, about the Year 1724. lived a rich wicked Yeoman, who kept two Sorts of things too long : One was a Parcel of Whores in his Houſe, and large Parcels of Wheat abroad in Ricks, in Cocks, and in his Barns ; for this Perſon rented the Tythes of a very large and famous Pariſh, which gave him an Opportunity, with what Corn his own Eſtate produced, to amafs, in a few Years, prodigious Quantities of Wheat ; and this he did on purpoſe

purpose to obtain a greater Price for it than ordinary. But so it happened, that he was disappointed of his Design of getting a great deal by such Stowage; for he died before it was sold, and left his vast Stock behind him, that he had hoarded up several Years, till at last good Part of it was spoiled through Age. He was a notorious wicked Liver; and who, among the rest of his unjust Deeds, railed-in a distant Parcel of open Field-ground, that lay on the Edge of the Vale of *Alebury*, contrary to all Law and Reason, and very much to the Damage of the poorer sort of People, who, before this, used to enjoy, after such a certain time of the Year, a Liberty for their Sheep or Cows to feed on the same: And upon his being asked, Why he did so? he said, Go to Law with me, if you think fit.

*How a Gentleman hired a Store-room in a Market-town for laying up and keeping Wheat against a rising Market; and how it was spoiled for Sale.*—In the Year 1741, a Gentleman bought a great Quantity of Wheat at Market, and sent a great deal of his own thither besides (for he held a large Farm in his Hands), to lay up for a future Sale. To this Purpose he hired a Store-room in the same Town, as a Loft or Granary to keep it in; but, being unskill'd in the Business, he mix'd some damp Wheat with his dry Wheat; and that produced such a Heat and Fermentation as bred a great Moisture, and even wetted all the Heap, to a considerable Damage; for by this means it quite spoil'd the Sale of it, because it matted together; insomuch that if a Sack of it was cut, it was thought the Wheat would not fall into Parts. This obliged him to fetch it away from the Loft, and carry it to the Mill, to break the Kernels, and fit them the better for feeding his Hogs with it; for it was not fit for human Use. By this wrong Management the

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Gentleman sustain'd a great Loss; for he was offer'd six Shillings a Bushel for all or most of it. But, refusing this good Price, he kept it on till sound Wheat sold, in *September 1742* for, three Shillings a Bushel, when his damaged Wheat could not be sold at all.

*How several Persons were deceived in keeping Wheat too long before they sold it.*———On *Thursday* the 16th of *April 1742*, there happened to be the biggest Market at *Hemsted* in *Hertsfordshire* that had been known for many Years before. The Reason for which was this: The very next Year after the hard Frost of 1739, there was a Famine; that raised the Price of this Grain to six Shillings a Bushel in *Hemsted* Market: But this Price did not satisfy many Farmers. On the contrary, it infatuated them with such aspiring Notions of Covetousness, as to deter Thousands from selling their Wheat even at this large Rate; and thereby so enhanced the Price of it, as to cause it to be sold, in some Markets, in 1740, for eight Shillings a Bushel. In our Parish of *Little Gaddesden*, two Farmers sold their Wheat in 1740 for six Shillings a Bushel, as well as myself: But they believing, or rather hoping, it would rise to ten Shillings a Bushel, desisted selling any more; but, instead of grasping that Sum, they, at last, were obliged to sell it for three Shillings a Bushel: For, as many Farmers were of their Mind, they sold no more of their Wheat than what mere Necessity forced them to, till the Year 1742, when the lower Country, or Vale Farmers, had done sowing their Lent-grain, there were so many Waggon-loads of Wheat brought up on the said 16th Day of *April*, to *Hemsted* Market, that the best Wheat was sold for no more than———Shillings a Bushel. But our two *Gaddesden* Farmers came worse off; for they kept their Wheat in Sacks, till it was very much damaged, by reason it was a little damp-

dampish when first put into them ; and, therefore, were obliged to sell it for three Shillings a Bushel, on the same 16th Day of *April* 1742.

*How a Person kept Wheat sound several Years to Profit.*—A Person living near *Tring* in *Hertfordshire* kept above fifteen hundred Bushels of Wheat in Bins, without stirring it ; and it is reported, that it kept free of the Weevil five or six Years : But, though it may be said to have kept sound all that Time, yet it had a Tang on tasting. Another Person, who lived about six Miles Distance from him, is said to have kept Wheat in Bins three or four Years, till the Skin of it appeared to be Part off ; for the Flour of the Corn feeds on the Skin, as the Inside of an Orange, or Lemon, does on its Rind. This Wheat was ground, and made not only a great deal of Flour, but of the finest, softest, and best Sort ; so that they who bought of it once, would have more. Wheat, kept thus sound, ground very short, running mostly into Flour, because it had but little Bran ; for when Wheat is laid up, thoroughly cured, the Salts, contained in it, have Power to ferment a little, and act free, and unmolested by too much Moisture ; and thus feed on the Skin of the Wheat, while the Flour remains sweet, short, and fine.

*How an old Farmer preserved his Wheat in Sacks.*—An old Farmer, who occupied a very small Farm, to get his Wheat dry, and preserve it so, took this Method, for want of Bins : He put it in Sacks, and had them carried up into a Chamber, where he put a Stick into the Middle of each Sack, and run it down to the Bottom ; then, every time his Wife baked, he took the Sticks out ; and, after the Bread was drawn, he laid them in the Oven to dry : And this Custom he continued till the Wheat was sold ; for, by thus drying the Sticks every

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Baking-time, they absorb'd the Humidity of the Wheat, and did it a great deal of Service.

*A second Case of the same.*—— The Harvest 174 was attended with Rains, which occasioned a great deal of damp Wheat. One of my Neighbours, who rented a small Farm, took this Method to dry it: He put a Couple of Sacks at a time near the Fire, in order to dry the Wheat, and fit it for Market: To this Purpose, he put a Stick about the Thickness of a Mop or Broomstick into each Sack, which, though forced, went down to the Bottom of the Sack with great Difficulty; for the Wheat was very damp, even to a clotted Degree. When a Sack had been a Month near the Fire, he shifted the Wheat into another Sack; and then the bottom Wheat became the uppermost, and the Stick went down pretty easy: And, by this Method, he got his Wheat into tolerable good Order. The best Way, therefore, for getting a small Parcel of damp Wheat dry, is, first, to bake the Sack; next, to put in the damp Wheat; next, to put it near the Fire, and shift it into another Sack every Fortnight; and, last, to bake the Stick every time a fresh Sack is baked to shift the Wheat into.

*Of a Farmer's keeping Wheat six Years in Sacks.*—— This Farmer lives about two Miles from me; and who about the Year —— sold Wheat for six Shillings a Bushel, that had been kept in Sacks six Years in a Loft at *Hemsted*: But, when he sold this Wheat, it was in a damaged Condition; for the Weevils had eaten Part of the Kernels; and therefore he sold it almost for half the Price of sound Wheat, which, at that time, was ten Shillings a Bushel. All the Sacks were rotted at Bottom, which obliged him to shift all the Wheat into others. This I am credibly informed of.

*How*

*How a Person made it Part of his Livelihood to buy Wheat at one Market, and sell it at another.—*

This Person, at this time, lives near— in *Bedfordshire*, where he rents a little Land ; and what he gets by that, and by buying of Wheat at one Market, and selling it another, he makes a shift to maintain his Family. Now the Method he takes to buy and manage his Wheat, is this: He goes to *Bedford Market*, that lies about twelve Miles distant from him ; and there, about *Christmas-time*, when Wheat is generally threshed out in frosty Weather, and when the Farmers Teams of this Country can't carry it to Markets nearer *London*, by reason of the Badness of their clayey miry Roads ; he then buys the right large fine red *Lammas* Wheat ; for here, I believe I may say, is sold the best of this Sort ; because in this County, *Northampton*, and *Leicestershire*, is the richest Wheat-land thought to be in *England*. Here he buys this Wheat almost as big as Cherry-stones, and lays it up in a Loft, or Granary, in Sacks, till the next Spring: Then, when these sloughy Roads are got dry, he fetches it home, and lays his Sacks of Wheat in a Chamber of his House ; observing, once in five or six Months time, to take all the Wheat out, and screen it, to free it from Dust, and keep it sweet: Then he puts it up again into the same Sacks ; and, when it is dry sunshiny Weather, he opens the Mouth of each Sack, and likewise his Windows, for the Wheat to have the Benefit of the Air ; but, when it is foul Weather, he ties up his Sacks, and shuts his Windows ; now-and-then turning them Bottom upwards, for the Kernels to lie in a contrary Position to what they did before ; which adds much to the keeping Wheat from heating, and preventing the Breed of Wevils. Thus this Man once kept a Parcel of red *Lammas* Wheat, that he bought in *Bedford Market*, in Sacks, six Years, perfectly

perfectly sound, till he sold it at *Hemsted*, in the Year 1737, for near five Shillings a Bushel, when others sold their old Wheat for only four Shillings a Bushel. Not that this is his constant Practice, to buy Wheat for keeping it so many Years; this was only a particular Fancy; for his usual Way was to buy and sell the same Wheat every Year; unless an extraordinary Prospect tempted him to the contrary.

*How several Landlords encourage their Tenants to forbear selling their Wheat, and keep it against a rising Market.*———This, I believe I may say, is much more in Practice in the lower or Northern Counties of *England*, than in the Southern Parts: For, as Gentlemen live more remote from *London*, I presume they live the cheaper; and, consequently, are better enabled to give their Tenants larger Credit than those that live at a greater Charge, near the expensive great Metropolis. This is obvious to me, not only from the Sight of those many Ricks, Stacks, Mows, and Cocks of Corn that are to be seen downwards, more than in our Up-country; but also from the many Relations I meet with from Tenants who enjoy such noble Landlords, that forbear taking their Rents two or three Years together, purely on account of giving their Tenants a Chance of the best Market: And this Favour they the more securely grant them, as they are Eye-witnesses of the Stock of Grain remaining on their Premises, sufficient for paying them all their Rent. And this kind Usage has often happened to the Interest of the Tenant, when the very Surplus-money of a raised Market has paid two or three Years clear Rent off; that is, that the high Price of a third Year's rising Market has been so much above the Price Wheat was at for two Years before, that it has paid three Years Rent: Precedents that I hardly ever meet with in the Southern, but

but often in the Northern Parts! For there are great Numbers of Waggon-loads of Wheat drawn to *Hemsted* Market in the Spring and Summer-season, out of *Buckinghamshire*, *Bedfordshire*, *Northamptonshire*, and *Leicestershire*: And, as I sell all my Grain at the same Market, I have frequent Opportunities to hear of these generous Landlords, and vigilant Tenants.

*Of Traunters buying Wheat to sell again; and of Tenants, who, by their own Ability, keep their Wheat for a rising Market.*—The Word *Traunter*, for aught I know, is more particularly used in *Hertfordshire* than elsewhere; for I hardly ever heard it mentioned in any other of the Southern Counties. The Word *Traunter* I take to mean, strictly, any Person that buys Wheat in Sacks, to sell again in Sacks: And this many do in our Parts; chiefly, Gentlemen, Farmers, and Tradesmen. A Gentleman, in *June* and *July* 1744, that did not understand the Matter himself, nor cared to be seen in it, employed a Person that did, to lay out as much of his Money in Wheat, as amounted to five hundred Pounds. Accordingly, he hired Lofts, or Granaries, near the Market-town, to keep it in, believing he then bought this Grain at a most low Price, even for less than three Shillings a Bushel: And, as Wheat was never known to be drier, nor in better Order, there is no Reason to doubt, but that it will, upon Occasion, keep sound several Years. There are also some Farmers that follow this Business; and are tempted to do it, chiefly from the great Conveniency they enjoy, in having Teams of their own for drawing Wheat from one Market to another, for employing their Leisure-times. I have seen this Piece of Husbandry performed by several Farmers, who, living between *Leighton* in *Bedfordshire*, and *Hemsted* in *Hertfordshire*,



*shire*, that are two Markets twelve Miles asunder, they buy it at the former to sell it at the latter ; and this they do in one and the same Week, as one is on a *Tuesday*, and the other on a *Thursday* ; and, perhaps, get as much as will pay Time and Carriage, and sometimes not ; at other times they keep the Wheat for a rising Market. Next to these, are Gentlemens and Farmers Servants, who, saving some Money in their Services, venture it this Way, and lay it up in Lofts, in hopes to get an Increase : But, for these three Years last past, most, or all, that have traded this Way, have been Losers, because Wheat has been falling from the great Price of six, seven, and eight Shillings a Bushel, since the Year 1740 to this of 1744. But, for following such Traunting Business, the Law requires the Qualification of a Licence, to be had of the Clerk of the Peace of each County. There is a Farmer, at this Time living near *Buntingford* in *Hertfordshire*, that has not sold any of his Wheat for these three Years last past ; because he keeps it in Mows abroad, and in Sacks at home, against a rising Market, occasioned by a wet Harvest, or otherwise : And this he does from his own Ability of Pocket, that enables him to keep such a dead Stock so many Years, upon a Lottery of gaining or losing.

*An Account of a Person dying worth about forty thousand Pounds, the greatest Part whereof was acquired by his drying Wheat, and keeping it sound, to sell at an advanced Price.*—This Account I take *verbatim* from Mr. *Tull*'s Works, who says, that  
 “ The mean Price of Wheat, betwixt dear and  
 “ cheap, is reckoned five Shillings a Bushel : 'Tis  
 “ commonly said, that a Farmer cannot thrive,  
 “ who, for want of Money, is obliged to sell his  
 “ Wheat under five Shillings a Bushel ; but, if  
 “ he will sell it dear, he must keep it when it is  
 “ cheap :

“ cheap: And his [meaning the Farmer’s] Way  
 “ of keeping it, is in the Straw; using his best  
 “ Contrivances to preserve it from the Mice.  
 “ But,” says he, “ the most secure Way of keeping  
 “ a great Quantity of Wheat, that ever I heard  
 “ of, is by drying of it. When I lived in Ox-  
 “ *fordshire*, one of my nearest Neighbours was  
 “ very expert in this, having practised it for great  
 “ Part of his Life. When Wheat was under three  
 “ Shillings a Bushel, he bought, in the Market,  
 “ as much of the middling Sort of Wheat as his  
 “ Money would reach to purchase. He has often  
 “ told me, that his Method was to dry it upon a  
 “ Hair-cloth, in a Malt-kiln, with no other Fuel  
 “ than clean Wheat-straw, never suffering it to  
 “ have any stronger Heat than that of the Sun.  
 “ The longest Time he ever let it remain in this  
 “ Heat, was twelve Hours; and the shortest Time,  
 “ about four Hours: The damper the Wheat was,  
 “ and the longer intended to be kept, the more  
 “ Drying it requires: But, how to distinguish  
 “ nicely the Degrees of Dampness, and the Num-  
 “ ber of Hours proper for its Continuance upon  
 “ the Kiln, he said was an Art impossible to be  
 “ learnt by any other Means than by Practice.  
 “ About three or four-and-twenty Years ago, Wheat  
 “ being at twelve Shillings a Bushel, he had in his  
 “ Granaries, as I was informed, five thousand  
 “ Quarters of dry’d Wheat, none of which cost  
 “ him above three Shillings a Bushel.

“ The dry’d Wheat was esteemed, by the *London*  
 “ Bakers, to work better than any new Wheat  
 “ that the Markets afforded. His Speculation,  
 “ which put him upon this Project, was, that  
 “ it was only the superfluous Moisture of the Grain  
 “ that caused its Corruption, and made it liable to  
 “ be eaten by the Wevil; and that, when this  
 “ Moisture was dried out, it might be kept sweet

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“ and

“ and good for many Years: And that the Effect  
 “ of all that Heat of the same Degree was the  
 “ same, whether of the Straw or of the Sun.”

As a Proof, he would shew, That every Grain  
 of his Wheat would grow after being kept seven  
 Years.

He was a most sincere honest Yeoman, who from  
 a small Substance he began with, left behind him  
 about forty thousand Pounds; the greatest Part  
 whereof was acquired by this Drying Method.

By this Time I think I have been long enough  
 on the Subject of buying and preserving Wheat;  
 and therefore shall postpone what I have further to  
 say on this Matter, to another Month's Works,  
 wherein I intend to finish this serviceable Account,  
 by writing on the several following Articles; viz.

*First*, How a Person may know how to buy a  
 a right Sort of Wheat, in a true Condition,  
 for laying it up in a cheap Time, to make a  
 Profit of it in a dear Time.—Or take it  
 this way—The Criterions or true Marks where-  
 by a Person may know the great Secret how  
 to buy that Sort of Wheat which is most fit-  
 ting to lay up for obtaining an advanc'd Price.

*Secondly*, Several Reasons why some Persons be-  
 lieve Wheat keeps better in Sacks than in a  
 loose Heap.

*Thirdly*, How to manage Wheat, dry'd in Sacks  
 by a Fire-side, to Advantage.

*Fourthly*, How to keep Wheat dry, tho' kept on  
 a Ground-floor.

*Fifthly*, The Method made use of at *Paris*, to  
 keep Wheat sweet and sound.

*Sixthly*, How Wheat has been preserved sound  
 at Sea in long Voyages.

*Seventhly*, Three several ways of drying Wheat  
 in the sweetest manner: Being Three Secrets of

very high Importance, that were never before published by any Author whatsoever; and which, if duly regarded and practised, will effectually prevent thousands of Quarters of Wheat being damaged, as thousands have been in a greater or lesser Degree, for want of knowing such Ways. In the Year — a Gentleman laid up Wheat to sell for a rising Market, that was a little dampish, expecting a Sale for it in a little Time: But it happen'd otherwise; and though he kept it in Lofts, not quite a Year and a half, it was so much damaged, that he gave his Hogs, it was thought, near eighty Quarters of it: An Example, one would think, sufficient to deter others from falling into the like Mistake; and the rather, since a Cure or Prevention of such a Misfortune may by these Means be most cheaply and readily attained.

And now, as I have been writing of preserving Wheat by several Methods practised in ours and other Countries, I shall proceed in the next Place to give an Account of the famous Doctor *Hales's* Brimstone-way of preventing Corn being corrupted by Weevil, &c. in Granaries; or if it is, how to cure it. To this Purpose, and that I may publish this Matter in the plainest manner, I shall here transcribe the Doctor's whole Directions on this Subject; which, though it interferes with some other Things than Corn; yet to illustrate this important Article the better, I shall, as I said, write the whole Directions he gives on this Account, as follows; viz.

## C H A P. XV.

*Directions to preserve Corn in Granaries, &c. from being eaten by Wevils, Maggots, or Worms.*

**T**HERE is another great Inconvenience, to which Sea-faring Persons are frequently exposed, by having their Provision of Biscuit and Corn much spoiled by being eaten by Worms, Maggots, or Wevils, especially in long Voyages; which Inconvenience might probably be in a great measure prevented, by the following Means; viz.

It is well known, that the Fumes of burning Brimstone are most destructive of animal Life; and will therefore not only destroy living Animals, but will also prevent the Growth of them in Bread or Corn, which is pack'd up in close Vessels, in which the Air is strongly impregnated with these Fumes; which, it is well known by repeated Experience, have a Power of destroying or reducing to a fixt unacreal State, the more wholesome vital Part of the Air.

Having therefore filled the Casks with Bread or Corn, or any other vegetable Substance, which is liable to be worm-eaten; bore six or eight Holes in one Head of the Casks, and two Holes in the other Head, more or less, as Experience will prove to be best, all of them about the Size of common Quart corks.

And that the Corn may not drop through these Holes, nor the Bread stop them up, it will be convenient to nail within-side of each Head of the Casks, three or four Sticks, about an Inch thick: These Sticks having a Piece of Hair-cloth, or very coarse Sack-cloth laid on them, will prevent the Falling through of the Corn; and yet give room for the Fumes

Fumes of the burning Brimstone to ascend ; and the Sticks, without a Hair-cloth, will prevent the Biscuit from immediately covering the Holes.

Having therefore provided a sufficient Quantity of Pieces of Tow, or linen Rags, dipped in melted Brimstone ; if the Casks are to be fumed on Shore, then, having dug a Hole in the Ground, about a Yard deep, and eighteen Inches wide ; throw into the Hole, more or less, as Experience will shew best, about a Quarter of a Pound of the brimston'd Tow or Rags, set on Fire ; immediately placing over the Hole, the Cask, with that End which has the most Holes in it, undermost, for the Fumes to ascend through them, into the Cask ; which yet they would not do, if there were some Holes in the Upper-head of the Cask, to give Vent for the Air to ascend through.

When you guess the Brimstone is burnt out, and that the Cask is full of Fumes all over (which it will be, when they have ascended for some time through the upper Holes), then drive Corks into the upper Holes ; and, turning the Cask sideways, on its Bouge, immediately cork up the lower Holes. The tighter the Cask is, the better and the longer it will keep the Fumes in, and prevent the Entrance of fresh Air, which would promote the Breeding of Insects.

But if by reason of the too great Closeness of the Hole in the Earth, it shall by Experience be found, that the great Smother of the Fume extinguishes the burning Brimstone ; then a less deep Hole may be made use of, on which a Cask may be set, with both its Heads out ; the Bread or Corn-cask being set on this at such a Height from the burning Brimstone, as to prevent the Bread or Corn being scorch'd by it ; for which Purpose about a Yard will be high enough : If need require, there may be two or three Holes bored in the Sides of the head-

headless Under-cask, or some Space left at the Bottom, in the Earth, to give Vent enough to keep the Brimstone burning.

'Tis probable that by this means Biscuit, Corn, &c. may be long preserved from being worm-eaten; But in case it shall by Experience be found needful to renew this Fumigation, especially in some long Voyages; it may be done with great Safety on Ship-board, in calm Weather; *viz.* by placing a Cask on Deck, with its upper Head out; in the Bottom of which let there be near a Foot Depth of Ballast, pressed hard down, with a kind of hollow Bason in the Middle, wherein to lay the burning Brimstone.

Not only Bread and Corn-casks may be thus fumed again, if need require; but also the Bread in the Bread-room, if infected with Wevils or Worms, may, by being thus fumed in Casks, have all the Vermin destroyed; which will conduce much to the Preservation of the Bread, by lessening their Number, though they cannot be thus wholly extirpated, because the Bread-room itself cannot well be fumed at Sea, while the Ship is full of People; though it may be safely done when in Harbour, by burning then some Brimstone in it, on a thick Bed of Ballast, in a shallow open Tub; which would for a long time preserve the Room from being infected with this Vermin.

I am told, that it is by some such Means that all the Rats in Ships are destroy'd, when in Harbour: But I must again and again caution against using any Fumes of burning Brimstone under Deck, while any Persons are there; for they will instantly be suffocated, before they are aware of it.

When the Wevils are got into the Malt or Corn in a Granary, they might easily be destroy'd, by putting the wevily Corn into Casks, or Chests, or large Cases made of Boards; which being placed over Holes in the Ground, with burning Brimstone in

in them, would soon destroy all living Animals in the Corn; and a great deal of Corn may be thus cured of Wevils, &c. in a little time.

The Wevils, in a Granary full of Corn, may also be destroy'd in the following manner; *viz.* Let there be many Holes bored in the Boards of the Granary, of such a Size that the Corn cannot fall through; or else let there be in several Parts of the Floor large Holes, covered with Laths, on which Hair-cloths are to be laid, as in Malt-kilns: And having provided a large Quantity of Tow dipp'd in melted Brimstone; if the Ground-floor of the Granary be of Earth, lay several Heaps of this brimstoned Tow, as big as a Man's Head, in the Proportion of about four Heaps to every twelve Feet square, taking care not to place them near the Walls. But if the lower Floor be covered with Boards, then lay the Parcels of Brimstone on Heaps of Sand or Earth, eight or twelve Inches thick, and laid on Tiles or Bricks, and hard press'd down, to prevent the melted Brimstone's getting thro' it; and, for greater Security, I used to put the Earth into common Wash-tubs. If the Floor on which the Corn lies, be six Feet distant above the burning Brimstone, there will be no Danger of its catching Fire; yet for fear of Mischief, great Care must be taken. All Doors and Windows must be closed as much as possible. If there are several Granaries over one another, the Fumes will pass through all with great Velocity and Acrimony.

The Fumes of burning Brimstone placed thus under the Corn, will ascend through it, with great Velocity and Acrimony: But if the burning Brimstone is placed above the Corn, tho' confined in a close Place, the Fumes will not then descend into the Corn, as I have found by Experience, having put in a Mussin Rag Ants, at the Bottom of such fumed Corn; but they were not killed thereby.



I have fumed whole Malt thus very strongly ; and then, being ground, brew'd with it. It gave no Taste to Beer, that I could perceive : The probable Effect of fuming it will be, that it may prevent the Beer's working too fast ; for this is well known to be the Effect of such Fumes on Wine and Cyder.

I fumed thus also some Sea Biscuit, Peas and Wheat, in a large Glass Vessel ; which was repeated again after ten Days, yet they had no ill Taste ; and, exposing them for some time to the open Air, would probably free them from the very little Taste it gives. I sowed the Peas, which grew ; so that the vegetative Quality of them was not spoiled : But the vegetative Quality of the Wheat was thereby wholly destroy'd, for none of it grew, tho' sown three several times, at some Weeks distance. It will not therefore be advisable to fume Corn thus, which is intended to be sown ; though it will probably prove an effectual Means to preserve Corn that is to be eaten ; which will be of great Use, especially in hot Climates, where I am informed, that the Corn is in great Quantities spoiled by this Vermin.

When the Wevil, &c. have got into a Cask of Bread or Corn, there is no doubt but that such Fuming will destroy them ; but it is doubtful whether their Eggs will thereby be spoiled : If therefore on Experience it shall be found, that young ones are hatched from those fumed Eggs, in some little Time ; then if these last hatched Wevils are destroy'd by another Fumigation, before they live long enough to lay Eggs ; this will be a Means to prevent their Increase for a long Time. But I think it probable, that if the fumed Casks are so close as to admit no fresh Air, the Eggs will scarcely hatch ; or if they do, that the very tender young ones cannot live and thrive in such an Air.

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Since the vegetative Quantity of Wheat is destroy'd by the Fumes of burning Brimstone, a Hint may hence be taken for an Improvement in making of Malt; *viz.* By thus destroying the vegetative Power of Barley (which may probably be done by laying it on the Kiln, and burning a good Quantity of Brimstone under it, for half an Hour, or an Hour), the Fumes of which will ascend through it, tho' laid to any Degree of Thickness. And if they shall be found to have the same Effect on Barley, as on the Wheat, then the Root of the Barley will not shoot, and consequently so much less of the Substance of the Grain will be exhausted in Malt-ing; on which Account the Malt will be proportionably better. This may be first tried by fuming only a Handful of Barley well; and then seeing if it will grow when sown in the Earth, or put in Water. Great care must be taken, not to come near the Upper-part of the Kiln, while the Brimstone is burning, lest they should be instantly suffocated.  
—*Philosophical Experiments*, Page 69.

## C H A P. XVI.

### *Of Bees.*

**T**HE Hertfordshire way of biving Bees. —

We first prepare a Hive made with Straw, by rubbing all the Inside with sugar'd Small-beer; and then we fix three Sticks in one Part of the Hive, for lodging the Combs. The Hive being thus prepar'd, in the next Place the Man prepares himself, by having a Piece of Crape, or some such Thing that he can see through, fastened about his Head, in such a manner that the Bees can't come at any Part of it to sting him. When this is done, he

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puts a Pair of Gloves on, and thus is equipp'd for Action. Now in case a Swarm of Bees settles on the Bough of a Tree, as they commonly do where Trees are near; I say, in this case he rears a Ladder, and ascends it, with a Hive in his Left Hand; and when he has with his Right Hand shaken the Lump or Swarm of Bees into the Hive, he immediately, with a Woman's Apron (that was first tied about the Hive), covers all the Bees in it, and descends the Ladder. Then he takes away the Apron, and claps the Hive on the Ground under the Tree, laying two Bits of Sticks under the Forepart of the Hive, to raise it a little hollow, for giving the Bees a free Passage in and out of the same. But for all that, some will settle in a Bunch, and be there till a second Attempt is made by the Man's going up the Ladder a second time, and with another empty Hive take them down as before. Then he claps this Hive just before the Mouth of that on the Ground, and the Bees readily go into it; so that by Night all are settled, for being carried to the Place of their Winter Residence. Bees have been hived three times in one Day, and yet flew away. A Swarm rose on the 15th Day of June 1744. at *Gaddeſden*, and settled on a Hedge; and tho' hived twice, they could not get them all in to stay that Night. Next Morning there were found some in the Hive; but they, and the rest that were abroad, all took a Flight to *Ivinghoe* Common, near half a Mile off the Place of their first Rising; and being followed, were found settled there on a Furze-bush, where they were watch'd by Children all the 16th Day; and on the 17th were all safely hived, and brought home—Another Swarm at *Gaddeſden* rose in May 1744. that were well hived; and in a Fortnight after a Colt rose from the same old Stock of Bees, and flew about as if they would settle, but did not, because the Wind was too cold; and

and returned to their Hive: However, next Day they rose again, settled on a Hedge, and were hived. Bees will sometimes ( but rarely ) swarm, cast, colt, and spew, from one and the same old Stock of Bees in one Summer. The Swarm, being the first, stands; the Cast seldom does; and the Colt and Spew never. The Cast, if the Weather is fine, has happen'd in eight Days time after the Swarm; the Colt in five Days after that; and the Spew in three more. The Cast, the Colt, and the Spews Honey is generally taken up about *Bartholomew-tide*, when the Blossoms of all Things vegetable are mostly over; and the Nights now being longer and colder, the Bees of all sorts begin to live on their gather'd Honey; which to prevent, they kill all those about this Time that they design shall not live, and take their Honey; and for the better Conveniency of doing this, the Colt and Spew ( when this great Increase happens ) are commonly put into one Hive at a Night-time.— Driving of Bees is look'd upon by some to be very hazardous, and therefore seldom practis'd by them, because if they have not Time enough, and a favourable Opportunity to get Honey enough for a Winter Store, they will turn Robbers, and fight other Bees, to get their Honey; by which many Bees are killed, and Hives emptied to fill theirs.

*How pernicious Tobacco-spittle and other Nastiness, is to Bees.*— A Man in our Parts hived a Swarm of Bees in a new Hive; and though they stay'd three Days in it, and had begun making their Combs, yet they all flew away and forsook it; suppos'd to have some Tobacco-spittle cast on some Part of it; For it is well known to many, that Bees hate Tobacco so much, that if a Person has a lighted Pipe of it in his Mouth, he may hive them without Danger. But this Item ought to extend itself further than only Tobacco; for Bees are one of the

most sensible and cleanliest Insects that live. They hate the very rough Inside of a Hive, ill Scents, or any other Nastiness near them: For as soon as they are hived, they fall to work, and bite off every little thing in their Power, that may prove an Annoyance to their future Enjoyment, and clean the Hive in an exquisite manner. But for giving a further Proof of this their cleanly Nature, it is common for the good Housewives, as soon as they have kill'd an old Stock, or Swarm, or Cast of Bees, and taken out their Honey, to put the empty Hive on the Ground near other Hives of Bees, for them to clear it of all the droffy Wax and Honey that remains and sticks on it: And this they'll do beyond the Art of Man, for the sake of collecting the Wax and Honey they get here, and carrying it to their own Hives. And though it may be here objected, that the Smoak of the Brimstone which was made use of to kill the last Bees, is of such a poisonous and disagreeable nature to these Animals, that it may be thought an Antidote to their coming near the old Hive; yet by keeping the Hive a Day or two in the House, and afterwards exposing the same to the open Air, the Smell of the Brimstone-smoak is taken away, and proves no Impediment to the Bees thus labouring to take away the Wax and Honey that remain'd cleaved to the Hive. When then the Hive is thus clean'd, the Housewives take and set it by as a ready prepar'd one against another Year.

*Why a found Swarm of Bees seldom proves successful to the Finder or Owner of them.*—A found Swarm seldom stands good long, because it has been observed, that the greatest Part of such Swarms turn Robbers of others. And if they do behave themselves well the first Season, they are apt the next to fly away when they swarm or cast, because if they happen at first to be of that sort which swarm'd  
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from Stocks in Trees, or in Cielings of Houses, the Residence of a Hive is unnatural to them. My next Neighbour in 1742. had a Swarm of Bees settled on his Hedge in a Field adjoining to one of mine, which he hived in good Order, but to no Purpose; for though this Chance-swarm was, as he thought, secured at Night, when he came to fetch them away, there was not one left in the Hive; nor is it to be expected, unless it be those sort that straggled from a Hive; for there are many Swarms of Bees that take to build their Combs in hollow Trees, or Cielings of Houses. I took a great deal of Honey once out of a hollow Tree that grew in my Hedge, after suffocating the Bees with Brimstone.

*How to make a Chance-swarm of Bees prove successful to the Owner.*—To naturalize these sort of Savages, the way practis'd in our Country is, to set them, when hived, in a Place by themselves, at some Distance from the other Bees: for when these have been so served, some have done very well; and this, because such Bees have been used to live free from the Company of all others, except their own Company; which makes them in course treat the Hive sort as Enemies: And remember, that all that keep Bees, should love them; for these hate those that hate them. A Farmer's Wife loved them much, but her Husband hated them: They would sting him, but not her. If the Bees swarm low, it is a bad Sign; if high, a good one.

*Doctor Warder's Way of hiving Bees.*—In my last monthly Book of *Agriculture Improved*, for the Month of May, I have wrote the Reverend Mr. Thorley's Account of the Swarming and Hiving of Bees: And now, for illustrating this most serviceable Subject in the best manner I am capable of, I shall here likewise publish, *verbatim*, Dr. Warder's Account of the same, that my Reader may have his Judgment the more amply inform'd; for I take  
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this Article of hiving Bees to be the most material one of all others relating to this wonderful Insect; and therefore the Doctor has been very particular and circumstantial in writing on the same, Page 76. where he begins his Chapter thus——

*Of Swarming, and the Reason why; and Hiving the Swarm.*—The two Swarming Months generally are *May* and *June*, though there are sometimes Swarms in *April*, and very often in *July*. Those in *April* are in great Danger (if cold Weather should follow their Swarming) to be starved, before they get any thing to begin Housekeeping withal. Those that swarm in *July*, though they are in no Danger of sudden Want, Honey-gathering being then plenty every where; yet they are in great Danger in the Winter following, for fear, lest having so short a Summer of it, they should not have gathered Honey enough to serve them till next Spring.

The Reason of their Swarming is for want of Room in the Hive; for when they have bred so many that the Hive will not contain them, then, after they have lain out a while in a large Bunch at the Mouth of the Hive, in a fine warm Day generally they swarm: But as there is no general Rule without an Exception, so here you will sometimes find they will not swarm, though they are very full, and lie out with a Bunch of Bees at the Mouth of the Hive, as big as your Head; and this they do for a Month together, though the Weather prove never so favourable, and will not swarm: The Reason is, there is no Prince ready to go forth with the Swarm; some Accident or other hath happened to the royal Brood within; and they will rather never swarm at all, than go off without their beloved Governess.

The best Time for hiving your Swarm is directly after the most of them are pitch'd; and this way

way commonly prevents their flying away ; for you must note, that the Bees are always provided of a Place which they design for a Habitation before they swarm, either in some hollow Tree, or in the hollow Part of some old Building, or in some Hive, perhaps a Mile or two distant from you, where other Bees have died, and left their Combs ; which the Swarm have already provided, by clearing out all the Filth of the dead Bees, or whatever else may be offensive to their cleanly Nature ; and they only pitch on the Tree near you, to gather all together, that they may go away together to their prepared House. I have had a strange Swarm of Bees come into my Garden, and fly directly into a Hive of old Combs, which they had been every Day at work upon, to cleanse and make fit for them, for fourteen Days before, every Day about an hundred or more hard at work, pulling out and clearing the Hive of dead Bodies of Bees, old Sandarach, and Moths ; and when quite clean, as I expected, the Swarm came, and went into their thus prepared House : But, however, though they always provide themselves of a House before they swarm, and take much Pains about it, yet if you are early enough in your taking the Swarm, and your Hive be clean, and not too old, they (finding themselves at unawares in a convenient House) have no mind generally to leave it, tho' sometimes they will, and give you a great deal of Trouble, and you will lose them at last : But if they rise again out of your Hive, either the same Day, or the next, as sometimes they will, and pitch again on a Tree near you ; then be sure hive them not in the same Hive ; for it is plain they had some Dislike of it.

The manner of taking them into your Hive is various, according to the Pitching of the Swarm. If your Swarm pitch upon a Tree that is pretty high, and be upon a single Bough, then the best way



way to take them is, with a very sharp Knife to cut off the Twig gently, else you will scatter the Bees; and lay it down on a Napkin under that very Tree they were cut from, or as near it as you can, and gently set your Hive over it; so will they undisturb'd crawl up, and hive themselves; so that you have nothing more to do, than in the Evening to remove them to their Place. But the general way of hiving them is, to hold the Hive under them, and shake them in; and having a Napkin, and a Stick to keep up one Side of the Hive, set them down on it; but let it be under the same Tree always, that the Bees that hanker about it (which they will always do, more or less) may be within hearing of the Swarm, and so go down to them; which they will naturally do: But if you set down the Swarm at any great Distance from the Place where they pitch'd, many will be lost, or at least return home again, which will be a Lessening of the Swarm: But if the Swarm part, and pitch Part of them on one Tree, and Part on another (as sometimes they will), that you may not be at a Loss what to do in such a Case, take the Directions following. Hive the two Parcels in two several Hives, and then let them stand within hearing of one another; and 'tis very likely that before Night comes, they will save you any further Trouble, by going all into that Hive where the Queen is: But if they do not, then about Ten o'Clock at Night proceed with them as in this and the following Pages shall be taught, how to join two small Swarms into one.

I shall not dwell long on this Subject, because almost every body doth already understand how to hive them, one way or other; and it matters not whether they are cut down or shaken into the Hive, if they stay quietly there; only this I must not omit to direct you about managing of the Casts, or second Swarms, which, as they are commonly ordered,

dered, come to little or no Profit. Now there is not, I think, scarcely one Cast in twenty, that will gather Honey enough to keep them till the next Spring; so that they are generally taken up at Taking-time with the old Stocks; but they have so little Honey in them, that they turn to no Account. Now the way to make something of them is thus (and pray believe me, for it will be to your great Advantage): Put two or three of these Casts into one Hive, and so they will become a good Stock, perhaps as good as any of your other Swarms, and stand over the Year very well. The manner how to perform this seeming-difficult Work, is very easy when known, which here shall be faithfully taught: When you have a Cast, or second Swarm, take it into the Hive, as you do the Swarms, and put it in its Place: Then, perhaps two or three Days after, or a Week, you may have another Cast, up and pitch'd; let this second Cast be hived by itself also in an empty Hive, and set under the Tree where it pitch'd, as before, till Night: Then you must put this second Cast to the first, thus: Spread a Napkin about ten a Clock at Night on the Ground, close by the Stool of the first Cast: Then lay a Stick cross the Napkin: Then fetch your second Cast that swarm'd that Day, and with a strong Stroke on the Stick which lies cross the Napkin, knock out all the Bees, which come all out at that one Stroke upon the Napkin, in a broad Lump: Then throwing the Hive out of your Hand, take your first Cast off from the Stool, and set over the Bees on the Napkin; so will they in about an Hour all crawl up, and become one Family: If any of them, as sometimes they will, hang about the Outfides of the Hive, let them with a Wing be brush'd off upon the Napkin, and they will soon go to their Fellows: So about eleven or twelve o'Clock take up the Hive, and put it into its Place; so have you

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two Casts in one Hive. In the same manner you may put a third, and a fourth; and so you may have a strong Hive of Bees for the next Year; for if they are in small Parcels, they can do no good; for out of so small a Parcel as one Cast, when all their Offices are provided for, there are so few to gather Honey, that little can be done; some must be appointed to keep the Brood warm, in order to breeding; some to keep Court with the Queen, some to keep Guard at the Mouth of the Hive, to keep away Thieves. But when, by this means of doubling the Casts, you have augmented your Numbers, they will have to spare, to supply every Occasion, and sufficient to gather Honey for the Family, stand all the Winter, and swarm the next Spring, as well as any of the other Stocks. The greater Quantity of Bees there are together, the better they are able to provide for themselves: My Meaning is, that one Peck of Bees, in one Hive, will get much more Honey than two Half-pecks will do in two Hives. The Reason why we put them together in the Evening, or so late, is, because by this means we prevent two great Inconveniencies: First, if it were in the Day, and they found such a Disturbance in the Hive, though the first Swarm that was at home, and had made some Works, would, it is probable, stand its Ground; yet, it is very likely, the second would rise again, and, perhaps, fly quite away; whereas, being in the Night, they cannot rise; but, all Night crawling one among another, they are united into one Monarchy, under one Queen; for they dispatch the Queen of the second Cast most commonly before the next Morning, and cast her out, though not always dead: Sometimes I have found her on the Ground alive, but never without her Guards about her, about two or three hundred, more or less, according to the Bigness of the Cast she belong'd to; which Guard *de Corps* never leave her

her till she is dead : For though the whole Swarm is confus'd with the other ; yet these, whose immediate Business it was, at that time, to guard their Sovereign, are so faithful in discharging that Trust, that they venture their own Lives for her Safety : And, though on the Ground with their Queen in the Night, in Danger of being chill'd to Death ; yet, to preserve their Sovereign from Cold and Danger, they all cling so close about her, that they seem to be one intire Creature : And it has been with some Difficulty that I have got them apart, to save the Bees, and put them to their Fellows ; which you may easily do, when you have got away the Queen ; but not before.

But, secondly, If you would put two Swarms, or Casts, together in the Day-time, you will see the most dreadful Battle betwixt them that is possible to be conceiv'd, to the great Danger of both Swarms, or Casts ; for they will never give over fighting in the Hive, and out of the Hive, till one of the Queens is kill'd ; and perhaps not then neither ; for many of these small Warriors will not presently know, that the other Queen is dead ; and so will keep on fighting to Death for their own Queen : For, till the Queen of the Hive comes to know it, and cause the Retreat to be sounded in her Camp, there is no giving over fighting ; but then, admitting all the Subjects of the slain Queen to Grace, they become one Family. But this great Hazard, Mischiefe, and the Loss of so many Bees as must fall in the Battle, is prevented by doing this Business at Night.

Many are the Ways that Country-people have of dressing the Hive, before they put the Bees into it ; some with Strong-beer, others with Salt and Water, others with rubbing the Inside of the Hive with Fennel ; some with Baum : But the best Way, if you will do any thing to the Hive at all (for they

will like it well enough as it is, if it be clean), is to rub it very hard all over with a coarse Cloth, to get off the loose Straws, or any thing else that will come off with rubbing; and then, with a little Water and Honey, let the Hive be rubbed only in the upper Part, which may make them the more willing to ascend. The Reason why you rub and cleanse the Hive very well before you put the Swarm in it, is to save these cleanly Creatures a great deal of Labour; which, else, they must take to clean it. Nay, when you have done what you can for them this Way, they will have much Work to do, before they will think it fit for their Dwelling; as appears, if you take notice of the Place where the Hive stood with the Swarm on the Napkin the first Day; there you will see abundance of short Bits of Straw, that stood out in their Way, gnaw'd off by the Bees with their Fangs: And, if you lay your Ear to the Hive any Time of the Night after they have swarm'd, you will hear them very busy about this Work all Night long.

*The Nature of Honey-dews, and of their Service to Bees.*——In *Hertfordshire* we say, when most Honey-dews fall, the Bees make the most Honey; and this it generally does in the greatest Plenty in *June*, when Wheat is blooming; and then begins the Danger of what we call Striking, or, in plainer Terms, the Glutinizing of the green Ears by the Fall of this sticking Body, or Honey-dew, which, when it falls often, and in great Plenty, it then becomes a favourable Year to Bee-masters, but an indifferent one to Chelturne-farmers, whose Crops of Wheat grow in inclosed Fields, where Trees and Hedges break off the Force of Winds, and thereby deprive the Wheat of that Benefit which open Fields have; that is, the shaking off the Honey-dews as they fall, or afterwards before they dry on the Ears or Stalks, and so close the tender green

green Kernels of Wheat, that they cannot enlarge their Growth, but remain till the last a thin lean-bodied Corn. But where the Wind has free Access, this Mischief is mostly prevented. However, though this Dew, or heavenly Manna, is sometimes hurtful to Corn, it never is so to Bees ; on the contrary, it is their most nourishing Food ; and when it falls in little Quantities, the Bees seldom prosper that Year ; as was, I presume, never more proved than by the late Season 1743, when, notwithstanding it was a very dry Summer and mild Winter, yet so few Honey-dews fell, that thousands of Hives of Bees perished for want of Food. But for a more full Account of this Honey-dew, take Mr. *Thorley's* Account of it as follows, *viz.*

What the Honey-dew is, is disputed among the Learned. According to the Antients, it was an Efflux of Air ; a Dew which fell upon Flowers.

The Moderns (says he) say it is rather a Perspiration of the finest Particles of the Sap in Plants, which, evaporating through the Pores, afterwards condense upon the Flowers.

*Pliny* was much in the dark about it, and writes doubtfully of it, asserting, it was either the Sweat of Heaven, the Spittle of the Stars, or the Moisture of the Air purging itself.

Doctor *Butler* judges it to be the Quintessence of all the Earth's Sweetness (*i. e.* of the Flowers) exhaled, or other Dews in Vapours, into the lowest Region of the Air, by the continued and exceeding Heat of the Sun, and condensed there.

And thence I have seen it very often descend in a clear Day, like an exceeding fine Rain ; and easily discerned it against the Light of the Sun, for many Hours, if not a whole Day together. The Doctor's Reasons are these :

When the Year is backward in its Fruits, the Honey-dews are the same.

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In hotter more southern Climates, where the Fruits and Flowers are most forward, these Dews are more timely : Also because those Countries, which have the greatest Plenty of the best and sweetest Flowers, have always the purest Honey.

And certain it is, that the hottest and driest Summers do produce the greatest and most frequent Honey-dews ; and in cold and wet Seasons, few or none of them are to be seen.

It is the most generally received and prevailing Opinion, that these Honey-dews consist of Vapours raised in the third Region ; and, being thoroughly purged and digested by the Heat of the Sun, and condensed, fall down to the Earth.

But as Plenty of Honey falls from above, so is there a native Sweetness in Plants, Flowers, &c. whence the Bees carefully and constantly gather it ; and as they extract it from the Flowers, they do not (as some Writers affirm) defecate, concoct, and refine it : But as Nature produces it, they fill their little Bags with it, immediately transport it to their Hives, and discharge it into the Magazines ; which done, they go back for more.

Much less do Bees make the Honey ; though some tell us the Dew is not Honey, except it be gathered by the Bees, concocted in their Bodies, and condensed by their Heat in the Combs.

And it is the Opinion of many Authors, that there is no material or substantial Difference between the Honey-dew, and the antient Manna of the *Israelites* in the Wilderness.

The Manna fell on the Ground, like hoary Frost ; was gathered early before the Sun waxed hot ; and tasted like Wafers made with Honey ; which shew some Similitude and Agreement betwixt them.

Honey was the Sugar of the Antients ; and the *Romans* used it in their Feasts.

C H A P.

CHAP. XVII.

*Of the Service of the Drill-plough.*

**H**OW serviceable the Drill-plough and Horse-break is for improving Crops of Peas and Beans.—

In Vales they generally sow their Horse-bean Seed promiscuously in the broad-cast Way; and then in their Rood, Half-acre, and Whole-acre Ridge-lands, with the Foot-plough. And if the Spring and Summer prove wettish, and the Hair-weed does not get their Master, the Vale-farmer generally comes off with very great Crops in their rich, black, stiffish Land. But when the Summer proves dry, and the Hair-weed takes them to a great degree, or the Black-fly makes its Lodgment on the Stalk and Bean-pod, they then generally have very poor Crops. Now, that these three Misfortunes may, in a great measure, be prevented, and the Vale-farmer almost depend on a plentiful Crop of Horse-beans in dry Summers, let his Seed be sown out of the Hopper of his three-wheel Drill-plough, in Drills at eighteen, one-and-twenty, or at four-and-twenty Inches Distance one from the other; and when his Horse-beans are high enough in *May*, or Beginning of *June*, let him draw the new-invented Horse-break between their Drill-rows, that has the late additional iron Improvement made to it, and it will clear the Intervals of all Weeds, and, at the same time, throw up and lay such a quantity of Mould on the Bean-roots in a little Space of Time, as will shade and greatly nourish them, even beyond Dung. Here then appears the Prospect of a very great Profit for little, very little, nay, even for a Trifle Charge, because this Horse-break Instrument, merely by its being fixed to the Carriage of the Drill-plough,

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after the Plough is taken off from it, and drawn by two Horses, will weed and dress three Acres of such drilled Horse-beans in one Day. But this great Profit does not end here ; for it is well known to all Vale-farmers, and to many Chelturne-farmers, that a Crop of Wheat loves to succeed a Crop of Horse-beans, and thrives better after them than Barley or Oats ; which Benefit formerly induced all Vale-farmers to sow no other Grain than Wheat or Horse-beans, as thousands do at this Day. But how much more has the Vale-farmer Reason to expect a good Crop of Wheat, when it immediately follows such a Bean-crop, and this without staying and losing a Year's time to bring the Ground into a Tilth for Wheat ! For a Wheat-crop, by this Drilling-husbandry, may succeed a Bean-crop the very same Year : That is, Wheat may be sown out of the Drill-plough in the Middle or vacant Interspaces of the last Drills of Beans, which were kept clean, and, as it were, in a fallow Condition, on purpose for sowing them thus with Wheat, about *Michaelmas*. And I have further to make known, that, by my former Writings on the Benefits of this Drill-husbandry, many Gentlemen have been invited, and come into the Use of the Drill-plough, Horse-break, &c. as the many Instruments I have, by Order, got made, and sent away, and the Copies of their Letters, inserted in my Monthly Books, make it appear. To which I add, that in my former Works I have given several Accounts how the excellent Three-wheel Drill-plough may be made use of, to great Profit, in different sorts of dry Chelturne-soils. But now I give a new Account how this Plough may likewise be made use of in Vale Ridge-lands to great Advantage ; and, indeed, it is like to be of happy Consequence for Vale-farming, as well as Chelturne-farming, that this Instrument, and two others, have been in-

vented; because by sowing Wheat, Beans, Peas, &c. out of the Hopper of this Plough, the Ground lies in Drills at such a proper Distance as to give room for the Horse-break, &c. to work between them, and kill the Thistle, the Hair-weed, the Curlock, and all others that usually infest Vale-grounds, which is what none of their Art or Labour could hitherto well effect; for all these Weeds have baffled their acutest Farmers Endeavours to destroy them intirely; and therefore thousands of Acres of Corn in some Years, do what they could to hinder it, have been crippled by them; but by these Instruments they may be prevented at a most small Charge. And now as a Gentleman, that I know, has introduced the Three-wheel Drill-plough into Use in a certain Vale, and sown Wheat out of its Hopper in *October* 1743. in his low-situated, stiff, wetfish, half-acre Ridge-lands, it is to be hoped more will follow his Example; for he had prodigious large Crops of Wheat, that grew in this manner in 1744. even so large as encouraged many to come to see them in the Field, from distant Parts; which Plough and Horse-break, &c. I am ready to supply any Gentleman with, on a proper Order.

*How a Gentleman, who lives on an Estate of his own, carries on his Farming Business without the Help of live Cattle, other than Horses, Cows, and Hogs, for his Family Uses.* — This seeming Paradox I shall make appear to be a plain Truth to a mean Capacity, by shewing that Wheat, and other Corn-crops, may be got for many Years together, without the Help of any Dung whatsoever; and this by means of sowing Wheat-feed out of the Hopper of the Three-wheel Drill-plough, which this Utensil will excellently well do, in a fine Tilth-earth in dry Weather, as it commonly is in the Month of *September* or *October*. And then a certain Gentleman, who is Owner and Occupier of a lean, gravelly,  
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loamy Soil, sows his Wheat in the Middle of the Twelve-inch Interval, that lay in a clean, weeded, fine Condition, all the time the drill'd Wheat was growing in Drills, last Year, on each Side of the Interval; for this Space or Vacancy between the Rows of Wheat gave room for a certain little Instrument, that costs but three Shillings, which we call a *Dutch Hoe*, to earth up the Mould in the Interspaces to the Roots of the Wheat, that will vastly nourish it, even as much or better than Dung, and destroy all manner of Weeds besides. With this Help, and with the Help of the fine Mould, that the Drill-plough leaves in the Posture of a little Ridge on the Drill, as soon as the Wheat is dropt out of the Hopper of the Plough, the Land is made to produce as much or more Grain than usually grows, where Wheat-feed has been sown out of a Man's Hand in the broad-cast way; and all this, I say, without the Help of Dung, or any Manure whatsoever: So that this Gentleman keeps no Sheep, nor Shepherd, because the Drill-plough, Horse-break, and *Dutch Hoe*, supplies them in great Perfection. And thus any Vale-farmer, that makes use of these Instruments, may be delivered from the Danger of rotting one or two Flocks of Store-sheep in one Year, which I have known some suffer the Loss of; for by this new Husbandry neither Chelturne nor Vale-farmer has any Occasion to keep any Folding-sheep at all, where their Lands lie inclosed. How happy a Conveniency, then, must this be to all those Vale-farmers, and others, who have not Money to purchase another fresh Flock of Sheep in the room of the last Flock that was kill'd, or sold for a Trifle, by means of a rotting wet Season! But how much more happy must this Invention prove to those who have little Money, and yet would take a large Farm! Surely, if the valuable Uses of these three Instruments were thorough-

thoroughly known, I should think thousands would sell some of their Goods (if they cannot do it otherwise) to buy them; for by this means the Dung of Horses, Cows, and Swine, may be laid on the Farmer's Meadow-ground, because the plowed Ground will want none of it; so that all his Wheat, his Barley, his Horse-beans, his Peas, and his Thetches, may be all sown out of the Hopper of this Three-wheel Drill-plough, by shifting the little notch'd Box, or cut Roller, and making use of that particular one, suitable for sowing this or that Seed. By this time I suppose my Reader will become so diffident, as hardly to credit what I have here advanced, because it is a perfect new way of Farming, and what he may not have heard of before: Therefore, if I cannot give him better Satisfaction than a Theory-proof, I may, perhaps, as well whistle to the Wind as think to persuade him to farm after this manner. To this I answer, That, for an incontestable Proof of this Matter, if any Gentleman or Farmer will pay me for my Journey, I will shew him several Places in Vale and Chelturne-countries, where he may see Corn and artificial Grass grow in a very beautiful and prolific Order, in Drills made by a Drill-plough. But there will naturally a Question arise from what I here write; and that is, How can Land be made to produce great Crops of Corn, without Dung or Manure? To this I answer, That the little Ridge of fine loose Earth, that lies on the Seed, will prove a sufficient Dressing to the Corn, by the Salts that wash down on the Seed out of this little Ridge of Earth; and the Dews beside, that fall from time to time afterwards on the same, and likewise are wash'd down to the Roots of the Corn. This is Nourishment enough, in the wettest or driest Seasons, to force on its Growth; and the more, because all the Earth is kept free and clear of Weeds:

And it is on this Account, that all Wheat growing in Drills is seldom damaged by Smut; for here is no Dung made use of to cause it: But the main Objection is to come yet; and that is, How can a Farmer pay his Rent, if he does not keep Sheep, and other live Cattle? It's true, that live Stock is one chief Part of a Farmer's Profit: But to over-balance this, I am here to represent the Advantages of Farming without it. And they are, first; As I said there is no live Cattle but Horses required, and consequently less Hazard of losing Cows, Sheep, and Swine, by Diseases. Secondly, The Charge of a Shepherd and Dairy-maid, and what we call an Odd Man, or one that is to set his Hand to any common Business, is saved; for in this Undertaking a Ploughman, a Ploughboy, and Tasker, are sufficient for managing a Farm of arable Land of fifty Pounds a Year, or more. Thirdly, There is no Occasion to buy Dung or Manure; an Article that many find the most chargeable of all others. I know a Chelturne-farmer, who rents about seventy Pounds a Year; and who, besides keeping a Flock of one hundred and twenty Weather-sheep for folding and dunging his Land, has, at thirty Miles Distance from *London*, laid out and expended, for only Coal-foot, in one Year's time, thirty-five Pounds. Fourthly, Here is the Wear of Harness, Carts, and Iron, very much saved, that would be otherwise employ'd in drawing Dung and Manure; as also Mens Time and Labour in doing it. Fifthly, By this, one and the same Field is kept under Corn and Fallow all the Summer. Sixthly, The Grain that grows in the Drilling-posture has more Air, and consequently not so soon hurt by Honey-dews, and other blighting Causes, as common sow'd Wheat is, is easier and sooner reap'd and dried: and not half the Seed required to sow an Acre of Land, as when it is sown in the usual

usual promiscuous way. It's true, there is a Charge of Hand-hoeing the Intervals, with the *Dutch Hoe*, once or twice in a Summer ; but this Charge may well be set against common Weeding with Hooks or Hands.

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C H A P. XVIII.

**H**OW much the Berkley Dairy-maid is esteemed for her Skill in making Gloucester Cheese.—

The County of Gloucester is well known to be most famous for making the best of thin Cheese ; and, as such, is so greatly esteemed at London, and other Places, that it bears a far better Price than thin Cheese made in *Warwickshire* and *Leicestershire* ; which valuable Property is undoubtedly more owing to the Skill and good Management of the Dairy-maid, than to the Grass or Herbage the Cows feed on ; as is apparent from that thin Cheese made in other Parts, where I have been, in Imitation of the fine *Gloucestershire* Cheese, where, before they had a Knowledge of this better Way, they made as bad thin Cheese as any ; but now, near as good as the *Gloucestershire* Cheese: And it is on this Account, that I employ my Pen in Praise of the *Berkley* Dairy maid, who, for her peculiar Skill in making and ordering the fine, mild, fat, thin *Gloucestershire* Cheese, is seldom suffered to be hired out of the Part she was brought up in ; for if she quits one Place, she is almost sure to be hired into another ; because their Farmers are so jealous of their Skill being made known in other Parts, that they take care, in time, to hire and keep them to themselves. But, notwithstanding all their Vigilance so to do, their Art has been spread many Miles from *Berkley*, even as far as *Wiltshire* ; where, in some Parts of it, they make abundance of thin Cheese, that is sent

sent to *London*, and there sold for the true *Gloucestershire* Sort. It is true, indeed, that a good Dairy-maid is a most valuable Servant: And, if every Dairy-country was as careful as *Berkley*, to keep them to themselves, few others would be the better for them. But this is not the Case any-where else, as I know of; for in all other Counties, besides *Gloucestershire*, Dairy-maids have the Liberty to try their Fortune elsewhere: And it is well they have, because many Girls get better Services abroad, than their own Country affords; for, I am sure, there are few, if any, reach the Wages of seven Pounds a Year, as one has that came out of *Warwickshire*, and whom I helped into a worthy Gentleman's Service; where she enjoys seven Pounds a Year, for making Butter and Cheese for the Family, and looking after the Poultry.

*The Advantage of making use of new-invented Dairy-utensils* ——— The Choice of these are of great Consequence to all Persons concerned in the Dairy-business, especially those who are engaged in large Degrees of this Undertaking; because, where many Cows are kept for a Dairy, the Advantages will be so much the greater; as I shall attempt to make appear by the following Account; viz. first, Of the small leaden square Utensil: This is made first with a Frame of Deal-board, and then cover'd over with thin mill'd Lead, in a shallow and most smooth neat square Shape, containing more or less Milk; for which Purpose, there are two Sorts, or Sizes, of these Leads made, the least of two Feet square, for moving to-and-fro at Conveniency: The other is two Feet wide, or more, and five Feet long, made for constant standing in one Place, and not moveable. The least is made with or without a Cork-hole; but the great one is always made with a Cork-hole in it, and a small Descent about it for the better drawing off the under blue thin Milk,  
and

and leaving the Cream behind ; for these convenient Leads give the Dairy-maid an Opportunity either to skim off the Cream in the usual Way with a Skimming-dish ; or otherwise, to let out the under blue Milk at a Cork-hole, and leave the Cream behind. But, in either Case, this Caution is to be duly observed ; That whenever the Cream is taken from out any of these leaden Frames, that Cream which sticks to the Sides of the Lead, is not to be meddled with, but left behind when the rest is taken away ; because the Lead is apt to give that Part of the Cream a blackish Colour, if not an ill Taste : And if such is mixed with the rest of the sweet Cream, it may damage the Butter ; which would be a needless Caution where Cream is taken from out of wooden Covers, or earthen glazed Pans ; for here the Side-cream is as sweet as the rest. And, for keeping these Leads sweet and clean, they must not be scour'd as Tubs, or wooden round Covers are ; these are to be only scoured every second time of using, and then done with Salt and Water ; for if these Leads were to be scoured with Ashes or Sand, as Tubs are, it would fret and roughen the smooth Lead, and be apt to cause it to retain the Taste of the Ashes or Sand. Therefore, they only scald the Leads one time, and every second time they rub them with Salt and Water, and a Wisp of Hay, or other soft Thing. But, for Tubs, they make use of a hard Hand-brush, with which they scour them with Wood or Bean-straw Ashes, or Sand : Of these the Bean-ashes excel, as making a very strong Lye. This for inside Work ; and for making the Outside of these Tubs, Churns, and Milking-pails look fine and white, they scour them with either a white Clay, or with Powder of Chalk : And when these square Leads are thus kept sweet and clean, they are most excellent Utensils to place in Cellars, in Summer



and Winter ; for here, by their smooth Outside, and cold Nature, they will cool Milk sooner than Tubs will, and cast up the sweetest and most Cream, in less time than they can, with the least Waste, and with the least Trouble, and Charge of Clearing. For these profitable Qualities, and for the Durability of these leaden Dairy-utensils, most of the Dairy-farmers, living in *Alesbury* large Vale, have been tempted to furnish their Dairies with them, as believing they can't be completely set up without them ; because Butter made with Cream taken from these Leads, is generally harder than that Butter made from Tub-cream, which is one of the chief Perfections belonging to the making of good Butter. And, for this Purpose, the following further serviceable Ways are practised by some of the nicer and better Sort of Dairy women ; viz.

*How to make up Butter in the coolest and sweetest manner.*——— This is, of consequence, to be observed ; because, if Butter is made up with a hot Hand, it may cause a Rankness in its Taste. But, to prevent this, most Dairy-maids observe to dip the Trenchers they make it up with, often in cold Water. In some Parts of the Country, to prevent all Damage that may attend the making up of Butter with too hot a Hand, they make use of a thick wooden Cup, made out of Beech, that holds just one Pound of Butter ; in which the Maid puts her new churn'd Butter, after first rubbing its Inside with Salt, or Salt and Water.

F I N I S.

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# I N D E X

For the Month of *JUNE*.

## A

**A**UTHOR's *Answer to the Virginia Letter* Page 22

## B

- Boyle, ingenious. *How he encouraged Arts and Sciences* 20
- Bees, the Hertfordshire way of *diving them* 113
- Why a sound Swarm proves unsuccessful* 116
- How pernicious Tobacco-spittle, and other Nastiness, is to Bees* 115
- How to make a sound or chance Swarm of Bees prove successful* 117
- Dr. Warder's way of *diving Bees* *ibid.*
- Butter, *how to make it up in the coolest way* 136
- Honey-dews, *their Service to Bees* 124

## C

Cheese, the *Advantage of making it with new-invented Utensils* 134

## D

Dairy-maid of Berkley, *how much she is esteemed for her Skill in making Cheese* 133

## A 2

## E

# I N D E X.

## E

<i>Encouragement given by the Irish Gentry for promoting Husbandry</i>	15
<i>————— given by the King of France to his Subjects for promoting Good-husbandry</i>	ibid.
<i>Engines, new-invented for Fishing</i>	66

## F

<i>Farmer, indolent: How one broke merely by ill managing his Farm</i>	12
<i>Farmers, why they should be more protected, by the Law, than any Tradesman, against vile Persons.</i>	16

## G

<i>Grazing Grounds, how cured that were over-run with Moss and Ant-bills</i>	29
<i>Ground, boggy, the first Occasion of it</i>	37

## H

<i>Hay, its good and bad Properties</i>	74
<i>Hendon way of curing and making it</i>	75

## I

<i>Insects. Observations on several Sorts of them, as the Land and Water-toad, Land and Water-frog, Land and Water-snails, Water-bugs, Water-lice, Water-skrimps, Water-worms, Water-maggots and Grubs, Water-spiders, Water-lizzards, Leaches, Horse-hair Insects, and Water-scorpion</i>	68
--	----

## L

# I N D E X.

## L

Landlords, <i>how it concerns them to prevent their Farms being damaged by Weeds</i>	5
Letter, <i>curious, wrote to this Author from America, shewing the several advantageous ways a Gentleman takes to improve his Estate</i>	6
Lord, <i>how a certain one gave his Tenants great Encouragement to provoke them to practise improved Husbandry</i>	14
Land, <i>how drained in Hertfordshire</i>	33
Letter from a Gentleman, <i>shewing how Bogs may be improved</i>	38
Second Letter upon the same Subject	42

## M

Meadow-grounds, <i>the Damage they are subject to</i>	27
———— <i>how spoiled by Moss</i>	28
Meadow-land, <i>how a Gentleman improved it</i>	31
———— <i>how a Tenant improved it</i>	32
Meadow, <i>low, in Buckinghamshire, how drain'd by a Gentleman</i>	34
———— <i>how improved by a Gentleman, by turning the Water of a River into another Course</i>	35

## O

Observations on improving Bog-lands	45
-------------------------------------	----

## P

Ploughs, <i>proper to improve marshy or boggy Grounds</i>	46
Ponds made at Gaddeſden	59
Pond, <i>how a Gentleman had a large one made, that never held Water</i>	60
———— <i>made for the Use of a private House</i>	61
Pond,	

# I N D E X.

Pond, made to swim Shoulder-slip'd Horses	62
—— large, made by Accident	ibid.
Plough-drill, its Service	127
—— how by its Use a Gentleman carries on his Farming Business, without a Stock of live Cattle	129

## R

Room made to answer the Convenience of a Cellar for keeping Liquors sound	53
--	----

## S

Springs of Water, to discover	50
Sea-fishing	66

## T

Tanks and Cellars, to make them for holding Water	54
Trouts made to acquire a Redness in their Flesh	65
Turnep-feed, several new ways to defend Crops of it against Field-fowls	77
—— how a Farmer dress'd a Piece of Ground for it, and had a bad Crop	50
Of the Dew-plant Turnep	79
New-broken-up Ground improper for Turnep-feed	80
Why Harrows are sometimes employ'd before Hoes for improving a Crop of Turneps	ibid.
Erroneous way to endeavour getting a Crop of Turneps without Hoeing	81
How the Shein Instrument sometimes supplies hoeing Turneps	83
Turnep seed sown in Drills, and Cole-feed between them	85
Turnep and Cole-feed sown together for a Crop	87

*How*

# I N D E X.

<i>How one Part of a Field took with Turneps; and the other miss'd</i>	ibid.
<i>Profitable Nature of the White, Green, and Red Turnep</i>	88
<i>How a Gentleman's Bailiff sowed a Field with Seed of the great Red Turnep, and lost his Crop by it</i>	89

## V

<i>Vaults, Cellars, and Rooms, making them to hold Water in wet or dry Ground</i>	52
---	----

## W

<i>Worlidge's Notes on Husbandry</i>	1
<i>Weeding Wheat, their way of doing it near Ampt-hill</i>	3
<i>Weeds, Burr and Cliver, how to prevent their Damage</i>	5
<i>Wells, Methods taken, and Prices given, for sinking them in Hertfordshire</i>	55
<i>Wheat, its Preservation</i>	90
<i>How a Gentleman built several Granaries to keep Wheat in</i>	92
<i>Large Granaries built at Brunswick, described</i>	94
<i>Several sorts of Persons that usually buy and lay up Wheat for Sale</i>	ibid.
<i>How a Yeoman laid up Wheat, and vow'd he would not sell it, till it rose to so much a Bushel; and what followed</i>	96
<i>How several Persons were deceived in keeping their Wheat too long before they sold it</i>	98
<i>How a Person kept Wheat sound several Years to Profit</i>	99
<i>How an old Farmer preserved his Wheat in Sacks</i>	ibid.
<i>A second Case of the same</i>	100
<i>A third Case of the same</i>	ibid.
	How

## I N D E X.

<i>How several Landlords have encouraged their Tenants to keep their Wheat against a rising Market</i>	102
<i>Wheat bought by Traunters for Sale</i>	103
<i>How a Person died worth many thousand Pounds, got chiefly by buying and selling Wheat; with an Account how he preserved it sound for seven Years together</i>	104
<i>Directions to preserve Corn in Granaries, &amp;c. from being eaten by Weevils, Maggots, or Worms</i>	108

## F I N I S.













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